

PERSONAL COLUMN

At some point in the first half of the 15th century, William of Ockham delivered himself of an important philosophical principle – "Entia", he remarked, "non sunt multiplicanda praeter necessitatem." And, furthermore, any unnecessary bits and bobs to the logic of an argument were to be removed by a process known as "Ockham's razor".

Logic can look after itself but, with practical matters in mind, I like to think that William was anticipating the arguments for education vouchers and wagging a warning razor at them.

Vouchers are not ends in themselves. They are a means of achieving something: lunch in the case of Luncheon Vouchers, better education for those who believe in education ones.

Education vouchers, the faithful argue, would do three things in particular: they would cause proper financial discipline to be applied to schools; they would increase the power of parents to choose the education they want for their children; and they would improve standards in schools.

With the sound of William stropping away in the background, let us consider each of these important claims in turn.

Vouchers can be in real money or pretend money. Before education vouchers can be real money, the schools to which they relate must charge fees. Now there are certain political difficulties in making all schools fee paying, which is perhaps why the idea does not get much publicity.

But to discuss real money vouchers without first explaining that they are needed to pay real fees is like introducing people to safety-nets before mentioning that you propose to throw them off the cliff.

Would a real money voucher system enforce financial discipline? Only if someone were to ensure that vouchers were to be the sole, or almost the sole, source of funding. Otherwise, if 200 parents turned up at a school with their money vouchers there would be nothing to stop the discipline thereby imposed from being eroded by some other agency, such as a local education authority.

Enter William with razor aloft. As an



PETER NEWSAM

Razor's edge

'If a school is not full, a voucher is not needed, if it is full, a voucher is of no use'

ities, once all schools become fee paying, local education authorities become *praefer necessitatem*.

At this point, William would be bound to point out that getting rid of I.e.s.s and collecting fees at thousands more independent schools through vouchers sent off ("I left it on the bus, Miss") to more than seven million parents could be unnecessarily complicated as well as politically tricky.

So why not just give the money directly to independent, fee-paying, schools and let maintained schools just pretend to be fee paying? And before too much voucher paper flowed into maintained schools, I believe William would have us accept that such vouchers should be *notional* rather than actual.

So, a parent visiting a favoured school would hand over a notional (that is, imaginary) voucher. Knocking away at his or her brow, the head would make a grateful voucher-receiving gesture. The receipt would take the form of an entry into a register which could be the very one schools are required to keep under the 1956 Pupils' Registration Regulations.

Financial discipline? The school would be funded on the number of pupils on the roll. If the school was not full, it would be the average number of pupils attending. No more sending classes home, when someone withdraws goodwill for a few minutes,

without a cash penalty.

To sum up, if financial discipline is the aim, all that is needed is "school finance based, except for special cases, on the numbers of children attending" – so say the authors of *No Turning Back*, the new agenda published last year by the Conservative Political Centre. Whether this is a sensible way to deal with schools may be doubted. What cannot be is that it shows vouchers to be unnecessary.

Would vouchers enhance parental choice of school? At any given school size, schools have spare places in them or they do not. Within the maintained sector, since 1980 a parent can send or transfer a child to any school with room in it. Voucher enthusiasts persist in arguing that this freedom is illusory. It is not. The illusion rests in supposing that it is. So if a school maintained by an I.e.a. has spare places, no one who could enter with a voucher needs one.

But what if the chosen school is full? There are various ways of dealing with this. At one extreme, a voucher enthusiast with a horror of the intervention of human intelligence in the management of affairs has argued for a lottery. When too many people want places in a school, the names are to go into a hat and the lucky ones get places. The unlucky ones move on to the next school.

In contrast to this form of peripatetic tombola, there can be principles, clearly

stated and publicly debated as in I.e.s.s, which determine the order of priority in which applicants are admitted to places. What all these systems, from the dot to the sane, have in common is that vouchers are irrelevant to their working.

If a school is not full, a voucher is not needed; if it is full, a voucher is of no use.

Would not over-subscription cause places to be built? Setting finance on someone should first consider why independent schools do not expand in accordance with market principles. The rash of temporary classrooms at Westminster? This is not because those responsible do not understand market forces; it is because over several hundred years, they have come to understand the nature of a school.

That leads on to the final claim: demand expressed through vouchers directly linked to improved standards. Is it? Lunch is less value-laden than education so consider the proposition in relation to that. So Luncheon Vouchers improve the quality of restaurants, do they? The range of fast food joints in my part of the world has recently extended and vouchers may have helped achieve this. But the supply of fast restaurants has remained.

The education voucher has been presented as a liberating idea which has encountered administrative difficulties strewn in its path by economically illiterate civil servants. The truth of the matter is that, if it does not mind unnecessary paper waste about, there is no great difficulty about education vouchers once all schools become fee-paying and no point in them if they do not.

NEXT WEEK

Curtain call
Nicky Harrison, star of Burnham, bows out as local authority head.

Wrong answers?
How examiners' mistakes can blight the candidates' chances.

New Labour agenda
While the Conservatives battle over education policy, what does Labour's stand?

EXTRA: Mathematics

Educational Supplement

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Extremist ban called for after right-wing election riot

by Mike Durham

Angry teachers have called for a ban on extremist groups to be banned from school premises following a riot at an election meeting held by the right-wing National Party at an east London primary school.

Eighteen people were arrested in the disturbance, which left several people injured and school buildings damaged.

The riot followed a last-minute High Court ruling ordering the Inner London Education Authority to open the school for the meeting under the Representation of the People Act.

The Labour-controlled ILEA may have to review its policy of not allowing schools to act as venues for political meetings. It is believed to be the first time an ILEA school has been used for a purpose.

The disturbance happened last Saturday when the BNP, which campaigns on a "whites only" platform, gave the go-ahead to hold a public meeting in advance of local elections in the London borough of Tower Hamlets.

The ILEA initially refused to allow the meeting to go ahead. But late on Friday afternoon, following legal action by the BNP, the High Court ruled that the ILEA had no right to refuse.

According to the Court, political meetings of all kinds are entitled to use any public building for election meetings under the Representation of the People Act.

About 300 protesters turned up outside the school, in a racially sensitive area of East London, when the meeting was due to start. According to police, they tried to prevent the meeting taking place.

Police broke down the back door and escorted about 50 BNP members in and then allowed about 100 members of the public into the school. There were scuffles and some arrests outside the school.

At the start of the meeting fighting broke out and police cleared the hall. Sixteen people, including BNP members, were arrested and since been charged with public order offences.

According to one observer, the violence began after members of the public started heckling the speakers, who included BNP leader Mr John Tyndall. BNP members threw chairs at the hecklers and the police were slow to move in.

Ironically there was a display of anti-Nazi posters in the school hall advertising an exhibition about Anne Frank, the Jewish schoolgirl diarist. Teachers said these had been torn down and defaced by BNP members.

This week outraged teachers at the school called for a change in the law to prevent school buildings being used by extremist groups, especially in racially sensitive areas. Nearly half the school's 400 pupils are of ethnic minority origin.

Headteacher Mr Frank Tarrant said that, although damage was slight, teachers and parents were horrified that the British National Party was allowed to use the school. "We just hope there will be enough evidence gained from this to prevent this kind of thing ever happening again."

"This is the first time extremists have used an ILEA school and hopefully it will be the last."

A large number of teachers from John Scurr and other local schools were among the demonstrators, who were alerted by word of mouth within less than 24 hours of the High Court ruling being known.

Ten people were due to appear at Old Street Magistrates Court this week in connection with the riot.

A spokesman for the ILEA said the authority had no choice but to allow the meeting to go ahead although it considered it offensive. A report is to be made to ILEA councillors after the elections.



Past participants: children from the Rosary primary school in Hampstead, London, dressed in period costumes for a visit to a local conservation exhibition. The display focused on environmental improvements in neighbouring Belzai Park.

Muslims reject Swann proposals

by David I. Jones

The main recommendations in the Swann Report as they affect religious education were this week rejected by representatives of the country's leading Muslim organizations.

In a statement to be published later this month they express full support for Sir Keith Joseph's view that the present law requiring religious education in worship and religious education in maintained schools should not be changed.

Professor Syed Ali Ashraf, director general of the Cambridge Islamic Academy, accused the Swann Committee of ignoring some of the basic needs of Muslims. "We appreciate the anti-racist approach" he said. "The way they have handled religious education is acceptable too in some respects but in quite a lot of others they have spoken with tongue in cheek."

It is the "extremely secularist basis" of Swann which the Muslims object to most. The committee, set up in 1979 to look at the educational needs and attainments of ethnic minority groups and make recommendations, reported last year.

It called for an undenominational and educational approach to teaching RE with an emphasis on introducing pupils to a variety of religious beliefs. It also proposed that the daily act of worship should be discontinued and did not recommend separate schools for Muslims, blacks or other ethnic minorities.

The signatories of this week's statement reject the undifferentiated approach to RE. Islam requires children to learn values, beliefs and morality through role models. The statement calls for Islam to be taught in school by qualified and experienced Muslims.

The 1944 Education Act's clauses on daily worship and RE should not be amended, it adds, provided the right of withdrawal of pupils remains when the worship pertains to one religion only. The statement calls on the Government to reject the Swann recommendation that no more voluntary aided schools be allowed.

"The suggestion by the committee... has been made only when it is Muslims who are wanting to set up such schools... By not allowing Muslims to run such schools the Government will be showing discrimination against Muslims."

The only individual cultures favoured by Swann, they say, are those not in conflict with "rationally justifiable shared values." This will not do for the Muslim community, which wants to maintain its basic values, "some of which are already directly opposed to the new lifestyles in the majority community," lifestyles regarded by Muslims as destructive of basic values.

As for the multicultural curriculum, it will simply reflect the cultural heritage of the selector and lead to cultural domination in disguise. It will also create doubts in the minds of children about faith in divine revelation, something treated in the Swann Report as just one variety of cultural stance.

In addition to Professor Ashraf, the statement was agreed by representatives of the Islamic Cultural Centre, the Muslim World League, the Islamic Circle Organization, the Muslim Educational Trust, Dr Faqr Muhammad Mashuq Ally, multi-ethnic inspector for the ILEA, and Mr Akram Khan-Chemra, Bradford education authority adviser.

Auditors to seek greater say for heads

A controversial plan to give heads greater say in the running of their schools will be proposed by the Audit Commission next week.

In a report to be published on Thursday the commission says that heads should be allowed to negotiate with local authorities about the content of the school curriculum and, subject to set spending limits, to manage the budget as they see fit.

This recommendation will be greeted with glee by the educational radicals within the Conservative Party who have been involved in a well-publicized and messy debate with political colleagues who favour greater government control over schools.

Last week their champion, and would-be successor to Sir Keith Joseph, Dr Rhodes Boyson, called for greater freedom for heads to run their schools in the way they thought best.

The lack of morale among teachers is put down to low pay and the commission says that money now spent on maintaining and heating underused schools should go on higher salaries and curriculum improvements.

I.e.s.s are told to get to grips with falling rolls even when this involves taking unpopular decisions. The commission estimates that up to 1,000 secondary schools will have to be closed over the next four years.

The Burnham Committee is described as outdated and is blamed for some of the management problems facing authorities. Pay and conditions should be negotiated together, says the report.

NOTICEBOARD

PEOPLE...

The Rev Robert Menzies has been appointed head-designate of the Royal National Institute for the Blind's new secondary school in Worcester, which will replace the RNIB's existing Worcester College for Boys and Chorleywood College for Girls.

Mr Sidney Miller, head of Kingston Grammar School, to be head of Bedford School, in succession to Mr C. Jones, who becomes Director of Studies at Britannia Royal Naval College, Dartmouth in August.

Mr Patrick Sills to be director of training of the London Boroughs' Training Committee – the joint body of the London local and health authorities responsible for health and social services staff training – on the retirement of Bruce Jackson.

Mr Tony Mole to be director of the Central Bureau, formerly the Central Bureau for Educational Visits and Exchanges.

CONFERENCES...

May 10
How important is the audience? National conference on the future of public services broadcasting in the Royal Festival Hall Waterloo Room, London, organized by Voice of the Listener Society. Free members £4.50, non-members £6.50. Details from the Conference Secretary, Voice of the Listener, 101 King's Drive, Gravesend, Kent DA12 5BQ.

May 10 and 20
Association for the Study of the Curriculum – north east region

conference on 5–16 Curriculum – a capital approach at the School of Education, Durham. The speakers will be Mrs Barbara McGilchrist and Mr David Mullen from ILEA and Mr Colin Richards HMI. On May 20 Mr Dines will speak on *New Examinations at 16-plus and 18-plus at Sedgfield Community College* at 7 pm. Details of both events from Malcolm Glenn, Chairman, ASC (NE Region), Education Offices, Woodlands Road, Middlesbrough, Cleveland.

May 16
Centre for Education Development and Training one-day workshop on stress-management at Shepherd's House, Manchester Polytechnic. Fee £12.25. Details from Mrs Ann Bromley, Centre for Educational Development and Training, Manchester Polytechnic, Elizabeth Gaskell Site, Hathersage Road, Manchester M13 9JA.

May 17
Centre for the Study of Comprehensive Schools SW region meeting on CPE, primary/secondary liaison and information technology across the curriculum at Laureston College. Details from Peter Salmon, St Stephen-in-Branneil School, St Austell, Cornwall.

May 17
Association of Teachers of Philosophy (Manchester region) conference on *Philosophy in schools* in All Saints Building, Manchester Polytechnic. Speakers include Dr Maurice Roche, Dr Neil Sellers, Anne Burgess and Anne Evans. Details from Michael Garfield, Manchester Polytechnic, Ormrod Building, Lower Ormrod Street, Manchester M15 6BX.

May 17
Links Association conference on *Specific literacy difficulties (Dyslexia) – theory, diagnosis and teaching* at Dyffryn House, St Nicholas, near Cardiff. Main speaker, Dr Margaret Newton. Details from Dr J. L. Thornton, 14 Tyle Gate, Watford Park, Clapham, Mid Glamorgan. Fee £16.

EVENTS...

May 6–June 6
Bangladesh and East London exhibition at Thames Polytechnic Mile End Campus, English Street, London E3, organized by the Polytechnic, Tower Hamlets AEI and the City and Tower Hamlets teachers' centre. Open evening on May 6 from 4.30 pm with dance, music and displays of children's work on Bangladesh.

May 15
Exhibition of pre-vocational studies materials at Guildford teachers' centre, Pewsey Hill, Guildford from 3–6 pm. Details from Mr Ian Skeaton, Head of Centre, Guildford, GU7 0D.

May 20
Ninth annual Woodfield Lecture at Loughborough University at 11 am. Margaret Spencer of London University Institute of Education will talk on *Symbols, outlining the academic study of children's literature*. Admission free. Details from Dr Margaret Kinnell, Department of Library and Information Studies, Loughborough University.

COURSES...

May 22–23
World Studies 8–13: training trainers – a two-day non-residential course at Regent's College, London NW1. Fee £30. Details from Dr David Hicks, St Martin's College, Lancaster LA1 3JD.

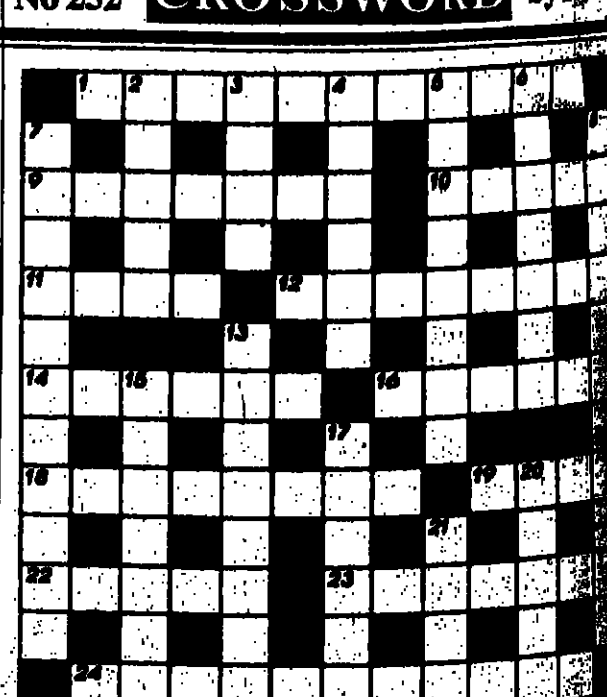
June 2–27
One-month course at the West Glamorgan Institute of Higher Education, Swansea, on the teaching of language, reading and English 4–16. Details from Diane O'Sullivan, Course Secretary, West Glamorgan Institute of Higher Education, Townhill Road, Swansea SA2 0UT.

PUBLICATIONS...

Swann Report and Travellers
The report of the conference organized by the Advisory Committee for the Education of Romany and other Travellers and the National Ergo Education Council last February has now been published. It costs £3 (including postage) and is available from Mary Waterson, ACERT, Keepers, High Wycombe, Bucks. Details from Mary Waterson, ACERT, Keepers, High Wycombe, Bucks. Details from Mary Waterson, ACERT, Keepers, High Wycombe, Bucks. Details from Mary Waterson, ACERT, Keepers, High Wycombe, Bucks.

Poetry Express is a new termly poetry newspaper for primary and middle schools produced by the Schools Poetry Association. For a free sample copy, please send a stamped, addressed envelope to: SPA, Twickenham Road, Twickenham, Surrey TW20 1NW.

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9 It provides an opening for parabolists (7)
10 Fully employ – an umbrella for example? (3,2)
11 Less than a pint – a measure for some drinks (4)
12 It may make a girl light-headed (8)
14 Architectural – high light (6)
16 Lingerie that is not here to stay (6)
18 Told, but possibly not needed to be (6)
19 Have a rewarding job (4)
20 New and again (5)

Down
2 Turnover in coats (5)
3 Love a note repeatedly played in the orchestra (4)
4 Arthur Dickensian character (6)
5 Mentally ill – as a change of routine before cure starts (8)
6 Dressed American general in retreat and encircled (7)
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page 30

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More questions than answers

To add to all the other signs that education is coming back into political fashion, Mr Giles Radice has now taken the stage with a major policy speech on Labour's education policy (page 4). In the aftermath of yesterday's local and parliamentary elections — which party will see most significance in holding them on Ascension Day? — the least anyone can do is take Mr Radice seriously and look at what he has to say.

Mr Hugo Young did so in *The Guardian* on Tuesday and did not think much of what he read. Perhaps he hoped to see some figures for the cost of the various bits and pieces. Perhaps he wanted more rigour in the determination of priorities, and some indication of how Mr Radice's educational shopping list was to be slotted into Mr Hattersley's economic and budgetary priorities.

There is clearly a long way to go before Mr Radice is in a position to give realistic answers to any of these questions. And in the absence of realistic answers, all he can offer are the usual platitudes. On the curriculum, for instance, Mr Radice's platitudes seem almost indistinguishable from Sir Keith's. What a relief it would be if someone could discover anything clear-cut enough to say about the curriculum to generate wholesome disagreement. All any front bench spokesman is against is sin.

The nearest Mr Radice comes to a categorical policy promise is in regard to private education. He repeats the conventional formula — which Labour shares with the Alliance — about stripping the independent schools of their fiscal privileges and

hidden subsidies, and ending the assisted places scheme. In a Ryedale by-election speech he went further, and rashly promised the abolition of fee-paying in education within the lifetime of a single parliament.

Such threats are always offered at about this stage in the political process and usually rebound on the person who makes them. There is no indication that Labour has got much further with the nuts and bolts of the law on charities or the intricacies of tax legislation which have always raised more problems for Labour ministers than Labour shadows ever seem aware of.

Coming so soon after more news that the public appetite for private education continues to rise, this can be seen either as a fool-hardy political gesture, or a brave refusal to court popularity. As with the sale of council houses, once regarded as deepest heresy by Labour, how serious it would be for the people's party if it turned out that private education is something people want, and even want to be available for others if not for themselves.

It would certainly be unwise to regard the abolition of private schools as an appropriate response to disillusion with the maintained schools after a prolonged and debilitating period of dispute between the teachers and their employers. There is no evidence whatever that any substantial body of public opinion supports the abolition of independent education and plenty to suggest that it would be regarded as a profoundly illiberal move.

Other aspects of Mr Radice's policy outline are

much less contentious. More pre-school provision is good. Who could oppose more resources for primary schools? He makes the right noises about 16-18 without going into any of the difficult specifics. He wants to open up higher education, take in more mature students and expand adult education — all laudable aims.

What we want to know, however, is which of these programmes will survive the pruning and cutting necessary to fit a quart of promises into a pint pot of resources. Wisely, he says nothing much about teachers' pay but, equally, he does little to dispel the idea that standing up to the NUT will be the first and most important job of a Labour Secretary of State if he is to command any credibility. There are no indications of how he is going to translate a bland general promise of more resources into blunt yes and no answers to particular requests.

In fact, it is difficult to see anything substantial in what has been billed as Mr Radice's major speech. The truth is that the last thing Labour really wants to do is spell out policy on education. The more a "socialist" education policy is expounded, the less likely it is that people will want to vote for it. Mr Radice peppers his speech with references to socialism, but he probably recognizes that this is a ritualistic form of words, and would much prefer simply to promise more resources and leave it at that. But this will not do for the Labour machine which goes on churning out policies by the yard. With so many hostages to fortune, Mr Radice is reduced to waffle. Till, that is, the crunch comes.

COMMENT

Better than

Independent appraisal of the Assessment of Performance Unit's language testing results by Mr Geoffrey Thornton (page 9) lays out a rich store of evidence and insights without quite justifying the sweeping optimism of its assertions. The surveys covered a large sample of primary children at 11 and secondary pupils at 15 between 1979 and 1983.

"No longer," claims Mr Thornton, a former Inspector of English for the Inner London Education Authority, "can arguments about standards rest upon anecdotal evidence." Good news indeed. Mr Thornton provides his own answer as to why the true facts are not on every critic's lips. It is because these substantial research documents "do not offer scope for doom-laden headlines and facile generalizations." Information may be more accessible, later this year when the APU itself publishes more details of its English language tests and findings, but at present the seeker after facile generalizations — such as whether the APU tests revealed a rise or fall in standards — has to be satisfied with qualified reassurance: "No evidence of widespread illiteracy was discovered"; "the surveys showed, as might be expected, that some pupils perform better than others"; "no collapse of standards was discovered"; "over the five years of the surveys, improvement in the performance of primary pupils was evidenced", while secondary performance re-

no comment

"Governors of Beconsfield's all-girls High School have warned parents the price of houses could fall if county council plans to take in boys are approved. 'Parents wanting single sex education for their girls will opt for Dr Challoner's'... Beconsfield High could become the least favoured school in the area. Just imagine what that will do to property values!"

From the Bucks Free Press, April 18.



KEVIN WILKES

If you pay peanuts...

One consequence of the teachers' pay dispute has been a spate of surveys showing just how badly teachers' salaries show up in the career stakes. The latest is noted on page 9.

The message is clearly getting through to potential candidates and to their parents and advisers. Moreover, the text overtones are barely concealed: one reason why a poorly paid teaching profession is taken for granted is because a majority of teachers are women.

The stock response of ministers has been to say: "Yes, we know teachers need more money, and if only they would agree to a new contract they can have more." But the kind of money they have mentioned doesn't begin to meet the case revealed by these comparative surveys.

The main issue in the teachers' pay dispute has been pay. Nobody wants to believe this statement of the obvious, but it is true. Ministers have tried to obfuscate it by blowing up the contract issue — an issue which has only become as important as it is now because of the failure to pay a decent salary.

If the teachers have to recognize that there is now no way out which doesn't include a new contract, ministers, for their part, must recognize that there is no way out without much more money than they have yet been prepared to envisage.

Writing on the wall

Between now and the end of this month, the University Grants Committee will be sending universities details of their recurrent grant for next year. The figure will be made up from two components — one for teaching, one for research — and a process will have begun which is aimed at concentrating the research effort where it is believed to be most effective.

Later in the year, the UGC will follow this up with draft plans for the three following years based on these same selective principles. To make matters infinitely more difficult, the Government's public expenditure plans mean a two per cent a year real term cut in the total amount of money available for distribution. Even the beneficiaries of this system are not going to do well; the losers will be hit severely.

When the full impact is known, a number of universities and departments will recognize the same graffiti on the wall as that which so disturbed King Nebuchadnezzar — *Mene, mene, tekel, upharsin* — and realize that they have been weighed in the balances and found wanting.

Or will they? It is clear from Sir Peter Swinnerton-Dyer's comments (page 3) that there is to be a massive campaign by the universities to bring home to the Government and the public (including anxious post-Ryedale politicians) the lasting damage which cuts will do. In the case of some institutions, it may actually mean bankruptcy. If pushed to the limit, they would have to shed staff rapidly, and the costs of redundancy (where these can legally be forced) will tip them into insolvency before bringing any savings. The Government have the whip hand on the money, but the universities control the information on which decisions are taken and have the experts to oust the politicians. Stand by for some back-tracking by Sir Keith (or his successor) when the battle heats up.

Second opinion

How does look, five years on

Dear Secretary of State

As we both approach the end of the year, I would ask you to remember who taught us at Harrow. I am known as "the shortage" in Maths, science and English. I was a teacher of great ability, and I was one of the four who were authors of the books on their subjects, and I was a Fellow of the Linnean Society. I was a schoolmaster of character, interests and great experience, and my colleagues, in the 1950s, were about 580 boys in the total, there were 55 masters, and pupil/teacher ratio was 10.52.

If they could comment on my work, would be their verdict on my work? There is much to be said for that. I was a teacher, and I was a schoolmaster, and I was a schoolmaster of character, interests and great experience, and my colleagues, in the 1950s, were about 580 boys in the total, there were 55 masters, and pupil/teacher ratio was 10.52.

The men who taught us at Harrow, in one way or another, education provided was not the country's industry, commerce, farms, professions and armed forces were to have people of talent, enterprise, fully prepared to meet society's needs. In the Second World War their faith and their dedication were justified, as was the work of the teachers of all our contemporary schools between the wars.

You and I were exceptionally privileged. We must have hoped that our lifetime something of the enormous advantages we enjoyed would be given us in trust so that we could eventually pass on our families the motto, you recall, was *Down to earth, but not down to earth*.

We will agree that never has there been more young men and women trained and educated in the disciplines of maths, science and technology, and in the majority of the country's secondary schools outside the independent sector it is increasingly impossible to find teachers who are adequately prepared to provide the courses for those who wish to follow them. At universities, the recruitment of graduates to these subjects for the Postgraduate Certificate in Education has declined by more than 10 per cent over the last five years. The decline is continuing.

Are you going to do anything about this major issue before you leave the scene? We believe that you have thought about it a great deal. Of the problems that have faced you, the solution of this one may be the most vital if the country is to survive as a reasonable and healthy, if not wealthy, society. One small but effective contribution would be to see that the students taking up teaching for the shortage subjects should receive the salaries rather than derisory amounts of £1,200. This would be the maximum they were going to get. ICI, Shell and the Services after some similar campaign is needed. And that is only once having joined the teaching profession, they will have to be prepared to pay.

I have contrasted the education system and I received with what was provided for the youngsters of the future. How will it look "Forty Years On?"

Jack Coyne
W J E Coyne is assistant education officer for Northamptonshire.

Sir Keith shuns further pressure to delay 16-plus

by Barry Huggill

Pressure for a postponement of the new GCSE examination grew this week as Wiltshire science teachers, Welsh parents, headteachers and a local education authority joined the chorus of voices urging Sir Keith Joseph to delay its introduction. But he repeated to them all that the exam will go ahead in September.

Coverly has taken the unusual decision to contact all other English and Welsh L.E.A.s to explain his plea to Sir Keith that the exam be held back for a year.

Chief education officer Robert Aitken says that, even at this late stage, he hopes enough pressure can be brought to make Sir Keith change his mind. All the teacher unions (bar the Professional Association of Teachers), both local authority associations and two of the examination boards have now called for a year's postponement. Today the Society of Education Officers, one of the few major educational organizations not to have made such a request, is to discuss the matter.

SEO president, Mr John Beale, said that he had "detected a measure of anxiety among my colleagues about the possibility of introducing the exam on time".

A delegation from the National Association of Head Teachers met Sir Keith on Monday to ask for extra resources or, failing that, deferment for a year. They came away convinced that Sir Keith would not agree to a postponement but hopeful that he might release more cash for the exam next year.

Sir Keith asked the heads to have meetings with his civil servants to discuss those aspects of the GCSE that might need extra resources. The heads agreed and another meeting will take place within a fortnight.

The Cwyd Federation of Parent Teacher Associations chose to make their request not to Sir Keith but to the House of Commons Standing Committee on Welsh Affairs.

Secretary of the federation, Mrs

Elaine Whalley, warned the committee on Wednesday that the exam, if introduced too quickly, would "run the risk of being little short of a fiasco". Seventeen heads of science departments in Wiltshire schools have also written to Sir Keith asking for a postponement.

"They describe the exam as 'a major leap forward' but add 'the introduction of such a major change requires the most favourable circumstances if pupils are not to suffer'". The Northern Examining Association, one of the five GCSE examining boards, has written to Sir Keith pointing out that the introduction of the exam can only be carried out successfully "with the co-operation and goodwill of teachers and the provision of necessary resources for schools in terms of staffing and teaching materials".

More than 235 syllabuses for the new GCSE had been approved and were being mailed daily to schools. Mr Chris Patten, junior education minister, told MPs during Question Time on Tuesday.

As ever, Mr Patten stressed that arrangements for the introduction of the exam were entirely on course.

But he was challenged by Mr Dennis Skinner, Labour MP for Bolsover, who complained that a letter from one of his constituents worried about the exam had not been answered after nearly six weeks by "this deadbeat" Secretary of State or the junior minister who is trying to get his job.

The imperturbable Mr Patten thanked Mr Skinner for his balanced contribution.

Teachers' unions in Northern Ireland have secured extra money to prepare for the new GCSE exam in 1988.

The province's 230 secondary schools are to be allocated an extra £500,000 in 1986-87 and a further £750,000 the next year to purchase books, materials and equipment.

Universities warn about cuts damage

by Hilary Wilce

New evidence of the damage the Government's proposed cuts would do to the universities has been collected by the University Grants Committee.

In chairman, Sir Peter Swinnerton-Dyer, said this week that financial projections produced by the universities, based on the Government's target cuts and assuming salary rises on a level with inflation, showed that most universities would be in a substantial deficit within the next few years.

They would have to shed a substantial number of staff, and they did not know where they would find the money to pay them off.

The detailed evidence would be put before the Department of Education and Science in June or July. "We will be giving them honest advice about what the cuts will mean," he said.

The Government is expected to cut the universities' grant by 2 per cent a year in real terms for the next two years.

The UGC has been collecting highly detailed information from the universities before changing the way it distributes resources. The information is on a scale never gathered before and includes research profiles from individual departments.

For the first time, universities are this year to receive similar amounts of money for teaching, based on student numbers, but the money they receive for research will be based on judgement about the quality of work done.

Liverpool heads opt to take daily lunchbreaks

by TES staff

More than 100 headteachers in Liverpool are taking a regular daily lunchbreak, in many cases leaving the school premises.

The heads, members of the National Association of Head Teachers, claim that the local authority has accepted responsibility for looking after children by employing lunchtime supervisors.

Heads in Humberston, Birmingham and Manchester are also set for clashes with their L.E.A.s over arrangements for lunchtime supervision.

Mr Don Craig, of the Liverpool NAHT, said: "We have decided that we have had enough. Lunchtime problems are overwhelming. The authority has clearly decided it can employ meal supervisors and does not need the support of heads."

He added that for many heads it was the first time in 17 years they had had a proper lunchbreak. "I for one am finding it rather pleasant." At present, 107 heads were taking the action.

The Liverpool dispute originated in the decision by the authority to employ supervisors on two occasions in March when teachers were participating in "days of action".

The Humberston, Birmingham and Manchester disputes are over planned supervision schemes that exclude payments to either heads or teachers carrying out such duties.

The NAHT has declared a formal dispute in Birmingham and Humberston over the proposed schemes.

A meeting is planned next week



A pupil at Hadfield comprehensive school sits on a £3000 police motorcycle, brought to her school as part of the Derbyshire Constabulary "Road Show" which is touring the county until the end of the summer term.

Police guidelines issued

Teachers should have a say in the training of police officers likely to have contact with schools, according to guidelines issued jointly today by the NUT and police unions.

Police training should promote "sensitivity to young people's needs" and should encourage non-racist and non-sexist attitudes, the guidelines say.

They also suggest it might be appropriate for some teachers to be trained in aspects of police organization.

Headteachers, in consultation with their staff, should decide whether to invite police into schools for educational reasons, the guidelines say.

They stress that educational visits should not be used for crime investigation.

Publication of the guidelines follows a series of meetings between the NUT and members of the Police Federation, the Association of Chief Police Officers and the Police Superintendents' Association.

● A High Court judge has halted the distribution of Conservative Party leaflets which wrongly claim that the London borough of Newham banned police from its schools. The leaflet was being distributed in Peckham, South London, for the Inner London Education Authority elections.

Labour tones down plans to abolish independents

by Mike Durham

The Labour Party, which this week launched a new charter for education, has soft-pedalled on its plan to abolish private schools — in line with its new "grey" marketing image.

Despite a by-election pledge by Labour education spokesman Mr Giles Radice to phase out fee-paying schools, the issue was scarcely touched on in what was described as a "semi-inal" policy speech on Monday.

And this week informed party sources emphasized that, while Labour is still committed to abolishing private schools, legislation to ban them was now very much a long-term aim and no longer seen as something to be achieved in a single Parliament.

In 1981, in a joint TUC-Labour Party document, Labour pledged to pass legislation within five years of taking office banning schools from charging fees.

One observer said: "The policy remains on the books, but in the present climate it is recognized that to do it within five years will not be a realistic aim." See Platform Page 4.

Nuclear-free milk

Pupils at Dulwich College preparatory school in Kent are to drink nuclear-free milk, under an agreement between the school and the local dairy farmer.

The school has asked the farmer, Mr Gordon Reynolds, to stop his cows eating grass and feed them on silage instead. He has agreed — at an extra charge of 6p a pint on the 160 bottles he supplies daily.

Graffiti protest

Two thousand teachers took to the streets of Manchester on Sunday in support of 18 colleagues still suspended from Fountainside High School in the "obscene graffiti" row. The 18, all members of the National Association of Schoolmasters/Union of Women Teachers, were sent home for refusing to teach five boys said to have daubed graffiti on a wall.

Professional Association of Teachers

WHAT EVERY TEACHER NEEDS TO KNOW

PAT is the most rapidly growing teachers' union in the United Kingdom. Its membership increased by 12,000 in 1985. Already in 1986, there has been a further increase in membership of several thousands.

PAT was responsible for the referral of the 1985/6 dispute on teachers' pay to ACAS and is committed to establishing professional conditions of service and professional levels of salary.

PAT has shown it is possible to advance teachers' interests without harming pupils' education.

PAT is not allied to any party political group and has parliamentary consultants and advisers in the Conservative, Labour and Alliance sectors.

If you wish to join PAT, all you need do is write to the following address (no stamp required):

Professional Association of Teachers
FREEPOST
Department EW
99 Friar Gate
Derby DE1 9BR

(0810)

Agenda for change

Giles Radice, Labour's education spokesman, delivered on Monday his much-heralded response to the Government's public infighting on education policy. We print here a shortened version of his text.



The obvious failure of Tory educational policies provides the Labour Party, which pioneered the modern primary school, introduced comprehensive schools and created the polytechnics and the Open University, with both a responsibility and an opportunity. In the sixties, there was a powerful tide of opinion, which Labour was able to capture, in favour of a fairer and better-resourced education system.

Now, after being on the defensive for a decade, we again have the chance to create a progressive consensus for educational advance, to put forward a broader approach, to show how the improvement of educational opportunities and raising educational standards can and should go hand in hand, and to emphasize the relevance of education to national recovery. We need to present a new educational agenda.

In the past, uncertainty about educational objectives has allowed the Conservatives to propagate a crudely vocational education for the many, alongside a narrowly academic version for the few. Socialists must advocate a broader approach, which goes well beyond both the range of basic skills relevant to work and high academic standards. It must embrace the personal, moral, social, as well as the practical, inventive and creative.

Education must enable pupils to learn basic skills. It must also help them to think and argue logically. It must develop artistic, creative, moral and physical potential. It must impart a knowledge of our cultural and religious heritage and that of others. It must give an understanding of today's technological, industrial and economic world.

It must make young people aware of their democratic rights and responsibilities. We have to give all our youngsters the knowledge, skill and self-confidence to participate in democracy. And it must encourage and appreciate, not only academic achievement, but also other kinds of attainment - the practical as well as the theoretical, the oral as well as the written, and the ability to communicate and co-operate with others.

Narrow vocationalism is not only culturally restricting but also economically ineffective. There is, in fact, a serious shortage of people with the skills and attitudes required for the modern economy. The "Victorian" but school-leavers who have mastered a broad range of basic linguistic, communication, numerical, technical and scientific skills, and who are creative, adaptable and able to work with others.

In an age of rapid change, what is required is not pupils who are narrowly trained in techniques which rapidly become obsolete, but independent-minded young men and women who have the intelligence, imagination and skill to adjust to different jobs, different situations and different people.

A broadly based and balanced school curriculum must introduce all pupils to the main areas of knowledge such as English, mathematics, the humanities, science, as well as craft, design and technology, the creative arts and political and social education.

That is why we support the growing consensus in favour of a common curriculum in the first three years of secondary schooling and a very substantial common core in the fourth and fifth years. We recognise that different pupils have different aptitudes, aspirations and abilities and that a common curriculum must meet the needs of those who are more academically gifted. But, with sensible curriculum planning, it is quite possible to satisfy the special requirements of these pupils without undermining the imperative to provide a broad and common education for all.

Socialists have always believed that education can and should be one of the main instruments in reducing inequality. Under this Government, however, inequality of provision has been deliberately encouraged. Indeed, if we were formerly inclined to underestimate the underlying background factors in generating inequality, there is now an equally unjustified pessimism about what access to high quality education can do to improve life chances.

How far can education compensate for social and economic disadvantage? In the early 1970s studies in America, such as those of Coleman and Jenks, seem to indicate that education can do much to improve life chances.

In Britain, research by the DES concluded that variations in exam results were to a considerable extent explained by social factors. Anthony Crosland, the Labour Secretary of State who began the

... a high proportion of young people enter adult life with only a limited grasp of the basic skills'

comprehensive revolution in 1965, himself warned that education change alone could not bring about greater equality. With the benefit of hindsight and experience, it is clearly wise to conclude that we can only expect education to help make society more equal if it is part of a general egalitarian strategy. But if we accept that there are limits to what education alone can achieve, we should also emphatically reject the pessimistic view that education makes no difference at all. The evidence is that good schooling improves both educational attainment and life chances.

The findings of the British Child Health and Development Study have shown that there is an academic pay-off, irrespective of social class and independent of home environment and parents' education, for children who have pre-school education. At the ages of both five and ten, they had higher marks on maths, English and general intelligence tests than children who had not any form of pre-school

ing. This confirms similar evidence derived from the monitoring of the experience of children who took part in the American Head Start programmes in the 1960s.

If we consider the impact of reform at primary and secondary school level, there has been a significant increase over the past 15 years in the proportion of pupils achieving exam success at all levels. Within this encouraging overall improvement, it is clear that some schools are better than others in developing their pupils' abilities.

The conclusion of the Butler study on school behaviour and attitudes were shaped and influenced by the qualities of school as an institution. A recently-published study on ILEA primary schools confirms that successful schools have a marked impact in their pupils' progress. In short, good schools, in which there is effective leadership, stimulating teaching, and parental involvement, make a real difference.

Yet a high proportion of young people enter adult life with only a limited grasp of the basic skills. This is not because they are incapable of learning. The reason is that post-16 education and training facilities in this country are still grossly inadequate.

Despite the expansion of the 1960s and the early 1970s, the percentage of working class children going into higher education has risen only slightly. Yet the Oxford Study on Social Mobility has demonstrated conclusively that the proportion could easily be doubled without any lowering of standards. Wastage takes place either because able children do not stay on at school or because of the lack of places available in universities and polytechnics.

If good schooling improves both educational achievement and life chances, then access to high quality education throughout life ought to be a basic right of citizenship. However, it is also a question of efficiency. The most successful countries are those which are prepared to give all their citizens a decent education. The arguments for greater educational opportunity are overwhelming on both social and economic grounds.

What we are talking about is opening up access to good quality education. It is not schooling as such which improves achievement and increases opportunity; it is good schooling.

A Labour Government will introduce an ambitious programme of expansion and reform, designed to:

- Expand under five provision, backed by a statutory obligation on local authorities and the necessary resources;
- Ensure that all primary and comprehensive schools are adequately resourced, that selection is ended in all local authorities, that equal learning opportunities are provided for boys and girls, that racial discrimination is eliminated and that positive encouragement and support is given to children from disadvantaged and deprived backgrounds;
- Remove immediately all subsidies from private schools, abolish the assisted places scheme, get rid of charitable status and remove all other tax concessions;
- Ensure a high quality two year post-sixteen education and training, introduce educational maintenance grants to encourage more 16-year-olds to remain in full time education and provide a co-ordinated educational framework for the 16-19 age group; and
- Open higher education to a much wider group than ever before (including a higher proportion of 18-olds, more mature students and part-timers) and provide education and training opportunities for adults throughout life.

We shall also carry through measures to tackle this Government's failure to raise standards and provide high quality education for all. This includes smaller classes (particularly younger children); an adequate supply of books and equipment; well maintained and well-ordered schools; access to a broad and balanced curriculum; an assessment system that encourages success rather than high failure; a real partnership between home and school; parents' complaints properly dealt with by a new independent education ombudsman; and, above all, a decently paid, well-trained, and highly committed teaching profession.

All parents want a higher standard of education for their children. The Labour Party, working at both national and local levels, will ensure that gets it.

If opportunity is to be increased, quality improved, we shall need to increase spending on education.

Since the Conservatives came to power, the share of education as a percentage of total public spending has declined from 11.8 per cent in 1978-79 to 10.8 per cent in 1983-84. We are spending £3.7 billion more on defence than on education, whereas in 1978-79 we were spending £20 million more on education than on defence.

We must now give educational spending higher priority. Of course there are going to be many demands on a future Labour Government and a every Labour Party member understands there will have to be overall priorities. In particular, support of education except that the case for more educational spending under a Labour Government will be made within the framework of an economic strategy whose overriding objective is the creation of jobs. Such a framework is, of course, helpful to a Labour Government service such as education. Clearly many of Labour's educational policies will either create or save employment, help to bring down unemployment.

However, a Labour Government is not likely to forget the underlying

... we must regard education not as a consumption item which can be safely cut but as a prudent long-term investment'

for a better educated and better trained workforce at all levels. That is why we give precedence to programmes which either increase educational opportunity and/or improve quality. Our plans for expanding access to education and opening up higher education are continuing education are likely to provide significantly increased educational opportunities, while financing "schools package", designed to raise the level of achievement, and providing funds for improving the standards of post-16 education and training obviously qualifies under the heading of quality.

From now on, we must regard education not as a consumption item which can be safely cut but as a prudent long-term investment without which our future is likely to become increasingly bleak.

One teacher union leader said of him: "He's the negotiator's equivalent of a compulsive gambler. I picture him as someone who sits down on the train, opens his briefcase and takes out a pack of cards."

Another close colleague observed: "He's like a stage conjurer - you never quite know when he's going to pull a white rabbit out of his top hat."

It remains to be seen whether he can find a magic solution in the teachers' pay talks in the next few months, and whether he can carry the confidence of local authority colleagues with him.

John Pearman, who has been deputy leader of the employers' side for 10 months - and has occasionally deputised for Mrs Harrison in the Burnham Committee - is by nature a full-time, dedicated politician.

Assuming the role of Burnham magician-in-chief will be only one of his tasks. He already belongs to a number of educational bodies: employers' leader on the Burnham Further Education Committee, a Commissioner of the Manpower Services Commission and a member of the Secondary Examinations Council and the

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Mrs Nicky Harrison will today make her last appearance as leader of the Burnham Management Panel. Mike Durham reviews her season in the lead, profiles her successor and reports on a new strike threat

Stepping outside Burnham theatre

Mrs Nicky Harrison, the one-time Television Topper who became a formidable education politician, may go down in Burnham Committee history as the showgirl who refused to dance to the teaching unions' tune.

But she is certain to be recalled as a thoroughly professional performer who succeeded in getting the show on the road, kept the audience on its toes and never forgot her lines.

After nearly a year centre stage, Mrs Harrison retires on Monday from the long soap opera of the teachers' pay dispute. She was not a candidate in the local elections and steps down as leader of the local authority negotiating team this weekend.

Fittingly, her final curtain call comes today when she chairs the employers' side at almost certainly her last Burnham Committee meeting. On Monday she will be succeeded by her deputy, Mr John Pearman.

Mrs Harrison, a Labour councillor for 20 years, former education chairman of Haringey and Labour leader on the management panel since 1980, is something of a legend in the otherwise drab world of education politics.

A chain-smoking, sociable, witty bon viveur, she has brought a touch of glamour and theatricality into the often dull routine of party group meetings, negotiating sessions, local authority conferences and press briefings.

But beneath a colourful exterior,

she is a serious and dedicated educationist with a genuine interest in the future of the service, sound political sense, and an unwavering determination, widely admired by teachers and colleagues alike.

One teacher union adversary said this week: "She is well known for her toughness, conviction and a high degree of political skill. Nicky Harrison may be a woman, but is no pushover."

Mrs Harrison arrived in politics after a chequered career which included 12 years as a chorus girl and dancer. She left school at 16 to supplement the family income and gave up early ambitions to go to university.

After her marriage she left the stage and moved to Haringey, where she became interested in local politics. It was the 1960s and the Conservatives were in control. She once said she spent a lot of time in the public gallery at education committees "and I thought I could do better."

Eventually she did, becoming an alderman in 1971 and later a Labour councillor, and education and finance chairman. She brought a unique, non-sensational approach and a flair for the unexpected, unorthodox and occasionally the unacceptable.

She was once reprimanded for chain smoking throughout a Health Education Committee meeting, and on another occasion sent eyebrows skywards by wearing jeans to a conference of shire county politicians.

No CLEA conference recently has been complete without tales of Nicky Harrison's later-than-late expeditions to local night clubs, fortified by an extra sardonic hushiness in her voice the morning after and the occasional smoker's cough.

Wiser counsels have prevailed over her political philosophy and style. She belongs to the traditional "left" left. She is universally regarded as a cautious negotiator, ready to stick to her guns, trustworthy and above all consistent.

One long-standing colleague said: "Nicky believes in the service - whereas so many other politicians believe in themselves. And she sticks to her line. She is widely liked and admired, and people trust her."

She is known to get on well personally with the Education Secretary, Sir Keith Joseph, a diplomatic plus point in delicate negotiations over education funding and control. "They both have a straight-forwardness and unwillingness to blur issues, even when they disagree," said a friend.

She is notoriously sensitive to criticism and slow to forgive. Even though she is departing, a number of her colleagues refused point-blank to talk to The TES about her for fear of causing offence.

In her all-too-brief appearance as a leading character on the Burnham stage, how has Mrs Harrison advanced the plot in the long-drawn-out drama of the teachers' pay talks? She took over the role last summer from Mr Philip Merdall, when relations between teachers and employers seemed at their lowest ebb.

Today the employers and five of the six teaching unions are back around the table - again through the biggest, the National Union of Teachers, is still playing hard to get.

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His inventive approach to problems can be gauged from the style he adopted in talks last year when, for a memorable fortnight, he stood in for Mrs Harrison. Within days, Mr Pearman had got talks going at a cracking pace with a series of imaginative behind-the-scenes offers, holding out the bait of more money in return for an ingenious combination of trade-offs and deals. And while they failed, teachers can look forward to similar whizz-bang negotiations in future.

Perhaps the biggest question is whether Mr Pearman can command the confidence of his own side, most of whom are distinctly more cautious than he is, and whether he can ultimately make any of his deals "stick".

Yet he remains on good terms with colleagues across the political spectrum, and is known to be a close friend of the Conservative group leader, Mr Philip Merdall, with whom he shares a temperamental love of the political cut-and-thrust.

Mr Pearman's flair for publicity and what can only be described as the calculated indiscretion have also brought charges that he is too liable to conduct negotiations through the Press - which is, in fact, all part of the Pearman political roadshow.

On one occasion he jubilantly celebrated a successful vote at the Burnham Committee by singing lyrics from a pop song in the bar - causing the chairman of the Burnham Committee, Sir John Wordie, to walk out in disgust.

His ability to reach a solution and see it implemented is borne out by his success in the college lecturers' negotiations - when as employers' leader of Burnham FE he reached a compromise which gave lecturers a substantial pay rise this year.

"He is very headstrong and prone to rush into things," one friend observed. "But he does seem to think that if he sits down for long enough with the other side, he'll find a way out. He's a high-risk negotiator, but so far he's never gone over the edge."

At the same time, he is celebrated for an eccentric, highly imaginative and sometimes erratic style of conducting negotiations which is likely to win him as many enemies as it does friends. If nothing else, future Burnham Com-

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Mr Pearman's flair for publicity and what can only be described as the calculated indiscretion have also brought charges that he is too liable to conduct negotiations through the Press - which is, in fact, all part of the Pearman political roadshow.

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His ability to reach a solution and see it implemented is borne out by his success in the college lecturers' negotiations - when as employers' leader of Burnham FE he reached a compromise which gave lecturers a substantial pay rise this year.

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PRIMARY

NEWS

New survey of policy on 4-year-old enrolments

by Sarah Bayliss

A national survey of local authority policies towards children starting school at four years of age will be conducted next term as part of a new research project expected to have widespread influence.

The survey may provide a revealing snapshot of how primary school admissions policies have shifted down the age range in recent years. It will be conducted by the National Foundation for Educational Research.

The foundation drew up a research proposal last year, having read clear signs that the number of four-year-olds in reception classes was climbing sharply. Between 1983 and 1984, the number of four-year-olds being taught in infant classes increased by 12.5 per cent, and 59.5 per cent of all four-year-olds were getting their early education in this form in 1984.

New statistics expected to be published by the Department of Education and Science in the next few weeks will show a 4 per cent increase in four-year-olds in primary schools between 1984 and 1985.

The NFER applied for DES funding to investigate the changing pattern of admissions and the type of education being offered to young children, but the department decided that before funding any new work it would wait for a review of existing under-fives research by Professor Margaret Clarke at Birmingham University.

That review will be published in the autumn at the earliest.

Meanwhile, the NFER has decided to press on and use its own funds for a

small study lasting one year with one full-time researcher and an assistant. "The foundation decided to go ahead because it was clearly a topical issue with changes happening fast," said Caroline Sharp, the researcher on "Starting School at Four".

The main aims of the study are: □ to identify key issues in the admission, management and education of younger fours in infant classes, noting problems and strategies for solving them; and □ to provide up-to-date information on i.e.a. policies and practices for early childhood education, with particular reference to school admission age and nursery provision.

According to the NFER's leaflet, the admission of four-year-olds to infant classes raises a number of questions: "Are appropriate nursery experiences available in the infant school?"

"Have reception teachers had suitable training and experience in working with four-year-olds?"

"Are the needs of younger children subordinated to those of older children in the same class?"

"What are the implications for nursery provision?"

Apart from the nationwide survey which will begin in September, Ms Sharp is studying the practice of two local authorities — one where four-year-olds have been admitted once a year in September for some time, the other where the policy is much more *ad hoc*, with children being admitted at the headteachers' discretion but with capitation allowances paid for each child.

Heads, teachers, nursery nurses and welfare assistants are being interviewed about such issues as whether or not entry is part-time to begin with, whether dates are staggered, whether playtime, lunchtime and assemblies for the four-year-olds have different arrangements.

"One of the main purposes," says Caroline Sharp, "is to find out what important factors should be considered if an authority is thinking of changing its policy in this direction and if a new policy is being brought in, what advice and guidance should schools have."

Running alongside the NFER work, another major study is being done in Calderdale, Rochdale and Wigan by the School Curriculum Development Committee.

Known as the "Small Authorities Project" its aim is to "examine the curriculum offered to four and five-year-old pupils in their first year of full-time education with particular reference to the continuity of experience and provision prior to entry and after moving on to their next class".

All three i.e.a.s admit children to full-time education at the beginning of the academic year in which they reach their fifth birthday.

In addition, an assessment is going on in Bedfordshire of 10 schools which all introduced a single entry date for four-year-olds last September. The pilot project was introduced after teachers had rejected an authority proposal to introduce early entry in all schools from September. The results will be assessed at the end of the year.

Staff confidence lacking in micro use, says report

by Carolyn O'Grady

A gloomy picture of underused computers and teachers in desperate need of advice and training has been painted by results of research into the use of micros in primary schools.

Few schools use micros for anything but mundane tasks and the majority of teachers can only just wire up and run the machines, says the report.

The report, by Pauline Bleach, a research fellow at Reading University, is based on 537 replies to a postal survey of primary schools in England, Wales and Scotland — a response of 77 per cent. Of these, 93 per cent had at least one computer and 6.28 per cent had none. Only 12 per cent had two or more. More than 70 per cent were bought via the Government's half price offer to schools. Seventy-six per cent were BBC machines and 12 per cent RML.

Only 58 per cent of schools used computers for up to 60 per cent of their available time and more than 20 per cent used them for less than 20 per cent of the time.

The Department of Trade and Industry's micros in schools scheme specified that two members of staff from each participating school should have two sessions of initial training. However, 13 per cent had not received this and in 19 per cent of schools only one teacher had been trained.

"In many instances," says the report, "the training served only to acquaint the teachers with wiring up the systems

and running elementary software". However, 70 per cent of teachers had attended in-service courses, most of which took place in their own time.

More than 60 per cent of the sample had less than 30 software programs. Very few of the schools use computers in adventurous ways. Most popular applications were games, alphabet skills, and comprehensions which are not seen as very challenging. Only 23 per cent use the microcomputer for wordprocessing (only 24.6 per cent had a printer).

"If staff were not receiving enough help initially, it is not surprising that many had not moved beyond the MRP Microprinter packs. Staff, barely confident in wiring up the machines, are hardly likely to attempt the more adventurous skills such as the use of databases and wordprocessing, the very areas in which computers can be most effectively used," says the report.

The report calls for a "massive resources injection to boost in-service training and provide the much needed information about the educational use of worthwhile software".

The Use of Microcomputers in Primary Schools by Pauline Bleach, Reading and Language Information Centre, Reading University School of Education.

● Anita Siraker on the under-use of computers — page 30.

APU warns of emphasis on neatness and spelling

by Barry Hugill

Teachers spend so much time correcting spelling and punctuation and encouraging neatness that they "communicate to pupils an over-simplified view of what writing is", claims an Assessment of Performance Unit report released this week.

The publication, a summary of language testing carried out by the unit between 1979 and 1983, says that contrary to popular opinion only about 3 per cent of pupils "have great difficulty with writing".

The author, Mr Geoffrey Thornton, former London Education Authority, stresses that the single most important conclusion to be drawn from the four years of research is that teacher attitude is crucial in determining pupil performance.

He says: "If they have been encouraged to feel that they are good, or reasonably good, writers, they will be pupils able to approach new writing tasks with confidence."

One APU survey of 11-year-olds showed that more than half of them thought neat handwriting and tidiness were the major constituents of good writing. Only a quarter thought "imagination and ideas important".

The emphasis on neatness, spelling and punctuation is often counterproductive, says the report. It does not lead to the elimination of mistakes and often results in pupils becoming discouraged. All of the research indicates that girls, as a group, tend to write better than boys. Teenage girls are much more likely to read, both for pleasure and for information than boys.



Only a quarter of 11-year-olds think imagination is an important element of good writing.

Boys read less and less as they get older and the situation will get even worse if teachers do not take "vigorous action", says Mr Thornton.

Teachers who fail to take note of what their male pupils like reading will have little success, he continues. "It is not being suggested that expressed preference for reading comics as against books should form the basis of a reading programme but it would be wise to take into account what pupils say about their attitude to reading."

A "narrow view of reading" is held by many secondary school teachers and this is reflected in the perception of many pupils that "reading is connected with English lessons and principally with fiction reading".

Secondary school pupils are likely to have more than one English teacher during their school career and there is a danger that they will receive "conflicting messages about the nature of language", says the report.

Even worse, different teachers could make "conflicting judgements about a pupil's work".

To avoid this, schools must adopt "a rigorous consensual approach to language". English teachers must have the same agreement about their subject as, for example, science teachers.

Mr Thornton says three major conclusions can be drawn from the research:

- Pupils must be offered a wide range of reading, writing and speaking exercises;
- All teachers in effect are teachers of English;
- Different circumstances require varied types of communication and teachers must be aware of this.

APU Language Testing 1979-1983 — an independent appraisal of the findings by Geoffrey Thornton. Available free on request from the DES.

Paupers in a class of their own

by Hillary Wilce



Kay Dawling: the low salary has not blunted her enthusiasm

Yet more evidence that teachers are now widely seen as the paupers of the professional world emerged this week in a magazine comparison of the attractions of different professions.

Nobody could be in teaching for the money, it says. "Salaries are embarrassingly inadequate by any standards". The magazine, *Working Woman*, whose readers are exactly that, says that starting salaries do not compare too badly with other professions but entrants soon get stuck. "To move a paltry £5,000 from novice to head, possibly 20 years later, is nothing less than insulting... No wonder that self-esteem is at an all-time low in the profession."

This situation is compared with law where, the magazine says, a successful barrister in her mid-thirties might be earning £50,000 or more gross, and with accountancy where newly-qualified entrants can earn about £13,000.

The magazine's "sample" teacher, Miss Kay Dawling, the 42-year-old deputy head of a Hertfordshire infants

school, speaks warmly of the attractions of teaching, and says the job is well-suited to working mothers.

"However, I don't think they should choose teaching as a career for those reasons alone," she says. "If there is a discrimination in favour of men gener-

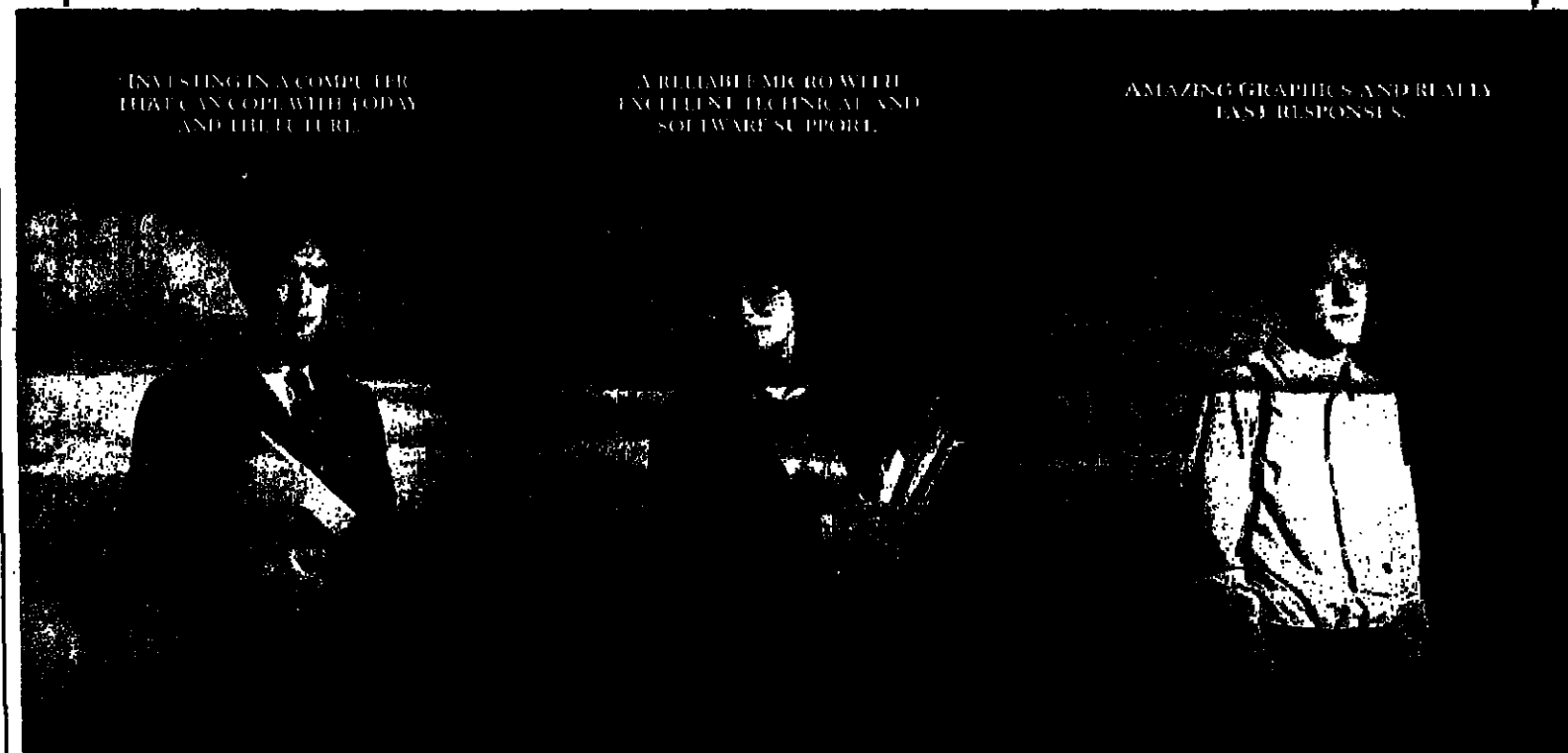
ally I suppose it is because the authorities still believe that a woman with two jobs—home and profession—cannot be fully committed to the latter and there is some truth in that."

This bookish presentation of teaching comes just a week after a

Gallup survey showed that students and sixth-formers viewed teaching as the most poorly paid of all the career prospects available to them. Only 1 in 20 undergraduates had made teaching their first choice of career, and among these, women outnumbered men by 3 to 1.

However, many of the 1,000 young people questioned felt that poor pay mattered less to women. Fifty-six per cent still felt that teaching was a good career for a man. Forty-four per cent agreed with the statement: "It is virtually impossible for a man with a family to live on a teacher's salary."

The National Association of Schoolmasters' Union of Women Teachers, which commissioned the poll, denied any sexist bias was intended by the question. Mr Nigel de Gruchy, deputy general secretary, said the question had been trying to establish whether pay levels were so low they were felt to be only suited to second-income earners.



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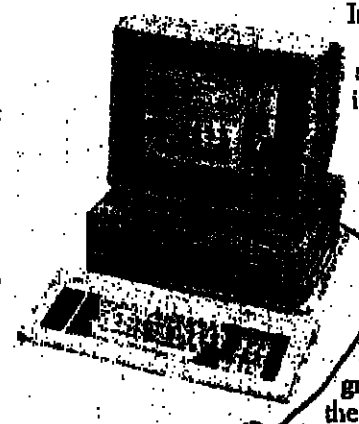
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Taking the role-play route to curb sex abuse



Michelle Elliott: a stranger can be anyone

The top juniors at Montem school in Finsbury Park, North London, were all pretty certain that it is all right to tell on bullies.

From the idea of the bully who steals dinner money, American psychologist Michelle Elliott, developed the Kidscap materials — and moved gradually onto incest, hugging and kisses.

Mrs Elliott began by establishing the basic rights of children. "Could she ask them to stop breathing for an hour?" Of course she couldn't, the children tell her. The message is that no one has the right to make a child feel unsafe.

The school's teachers play out scenes and the children discuss how they should behave. First, the bully orders a child to hand over money. Mrs Elliott asks the class what the bullied child should do. It is agreed that the child had to hand over the money but the next day the child should take a

Kidscap — a programme to teach children how to defend themselves against sexual abuse — was launched last month. Geraldine Hackett reports on how it works in the classroom.

group of friends to confront the bully.

The class is asked to describe a stranger. One or two say a man in an overcoat, but Mrs Elliott establishes that a stranger can be anyone.

Another teacher pretends to be a stranger approaching a child. She tricks the child into revealing that her surname is Jones and then says that Mrs Jones is in hospital.

The class work out how the child was tricked and is asked to describe the stranger. Although the stranger is a teacher, there is a remarkable divergence in the children's descriptions of age and clothing. Mrs Elliott tells them to work out heights by comparison with people they know.

The class practise shouting "no" very loudly, using all their lung capacity. Once all the children understand how to keep safe — running to a crowd of people or stopping a policeman — Mrs Elliott moves on to unwelcome approaches from adults the children know.

Two teachers play out the scene of a girl staying with her aunt and uncle. The uncle asks the girl for hugs and kisses and she clearly feels uncomfortable.

The class is asked whether the girl wanted to kiss her uncle and they talk about the difference between kisses and hugs they liked and ones they didn't.

It is at this stage that an experienced teacher can detect from facial expressions that a child has been "sexually abused". Some children can look close to tears and a discussion begins to

playing, the uncle then switches to being the child's parents and he hugs the child while she tells him what has happened.

Mrs Elliott then stresses the point that adults should never tell a child that hugs and kisses have to be kept a secret.

The whole scene is played again with the child saying to her uncle: "No, I don't want to give you a hug and kiss and I am going to tell about you."

Finally, Mrs Elliott invites them all to tell her about anything that has frightened them.

Most of the children take up the invitation and most tell her about a film or video that has frightened them. Some will have been flashed at or had an obscene phone call. But it is also at this stage that Mrs Elliott picks up those children who have been or are being sexually abused. Those cases are referred to the educational welfare officer.

From her experience, Mrs Elliott believes there is no discernible pattern to child abuse. A child in a small village school was being sexually abused by her stepfather, a child in a city school was being abused by his parents' lodger and at a private school she found a boy being abused by his grandfather.

At Montem, the head, Mrs Linda Frost, says Kidscap has helped teachers to pick up on children showing signs of disturbance.

All classes have been introduced to Kidscap and the teachers have become skilled in their acting roles. Parents have to give permission for their children to attend Out of the 4,000 covered in Kidscap sessions, only six parents have refused permission.

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Vague policies for under-5s

A difference of opinion about services for under-fives has led to ambiguous policies among local authorities. Provision may have resulted from historical accident rather than a rational look at needs, since redistribution of resources is often unpopular with the electorate.

This emerges from a report published this week by the National Consumer Council. It looks at different services, including play, day care and education for the under-fives, in Cambridgeshire and Newcastle upon Tyne. The study was carried out to show consumers how they could make a judgement on the quality of these services.

The report concludes that politicians must clarify their objectives, if possible defining targets of provision and reporting achievements.

Measuring Up, Consumer assessment of local authority services: a guideline study. Ed. NCC. 18, Queen Anne's Gate, London SW1H 9AA.

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SCHOOL TRAVEL SERVICE

NEWS

L.e.a.s attacked over poor deal for spastics

by James Melkie

Education authorities have been criticized for failing to give information on the way they assess children with special needs.

The Centre for Studies on Integration in Education, based at the Spastics Society, said this week that many parents were getting a raw deal from authorities who were ignoring the spirit of the law. The criticisms follow a survey in which 65 of the 104 L.e.a.s in England and Wales chose to take part.

The main findings in a report written by a journalist Rick Rogers included:

- Half the authorities fail to give a proper background to assessment of, and provision for, special educational needs;
- Many L.e.a.s are reluctant to spell out their duties;
- Only 14 per cent refer to parents as partners in the assessment process;
- Only a third tell parents they have a right to be fully consulted and to receive all relevant information;

- Only one refers to the need to take account of the feelings of the child;
- Only a quarter of the authorities in the survey refer to literature and sources of help from within the authority, and only one in seven mentions outside voluntary bodies.

The survey found that L.e.a.s produced material in different ways - as part of a general publication on the education system in the authority, as a separate publication, or in stages, after an initial booklet or leaflet, through letters to parents as they go through assessments, statements or appeals procedures.

The CSIE conducted the survey because it was worried about the number of complaints from parents about lack of information.

The replies were analysed last summer.

The CSIE notes the different attitudes adopted in giving information. Lincolnshire and Leicestershire are

praised for using language that is clear, concise, accessible and unpatronizing.

Local authority duties on special education are covered by the 1981 Education Act which came into force two years later. But CSIE says information for parents is covered also by the 1980 Education Act and regulations introduced in 1981.

CSIE recognizes that much of the material analysed in the survey represented "first attempts" by authorities but hopes its comments will help improve the content, design and distribution.

CSIE is organizing a one-day conference tomorrow to launch a national umbrella organization for parent-support groups called "81 Action".

The report, "Caught in the Act - What L.e.a.s tell parents under the 1981 Education Act" is available at £3.50 from the CSIE, the Spastics Society, 16 Fitzroy Square, London W1P 5HQ.

Public divided on reorganization

by Biddy Passmore

The London borough of Merton has been seeking the public's view on how it should reorganize its schools. But the answers to its questions may make it wish it had never asked.

Only on one topic did the 5,200 parents, teachers, governors, students and others provide an unambiguous pointer to action. A clear majority in all categories wanted to keep some single sex provision, whatever the system.

Otherwise, all was infinite variety. Of the 4,083 parents and guardians who returned questionnaires, 48 per cent wanted to keep the present system of primary, middle and high schools, while 42 per cent wished to see a change.

As for the consumers, the 243 high school pupils and 140 Merton College students voted decisively for a move to a mixed sixth-form/tertiary college scheme.

But this result masked considerable differences. The boys in single sex schools appeared contented with their lot and preferred to keep the present

system, while the girls in single sex schools were equally keen on a change. Those in mixed schools were evenly divided.

No decisive view on the matter could be obtained from the 209 governors who replied.

The 427 teachers and lecturers who responded had views which reflected their institutional level.

Merton College staff were 85 per cent in favour of moving to a sixth-form/tertiary college scheme, as was an overall majority of high school teachers. But middle and nursery primary school teachers wanted to keep the present system.

If Merton did decide to introduce a break at 16, most parents, teachers and governors were in favour of an earlier break at 11 rather than a system with breaks at 8 and 12.

On parents' choice, parents were almost evenly divided, although there was a small majority in favour of complete freedom, even if that puts popular schools at risk. Teachers and lecturers strongly disagreed.

NUT offended by political bias policy

The National Union of Teachers has condemned as "unnecessary and insulting" a draft policy statement from Sir Keith Joseph on political bias.

The Education Secretary recently said teachers should make clear when tackling politically controversial issues that on matters of opinion, other views

Education and Science has produced no evidence of teachers abusing their authority by indoctrinating pupils with partisan politics.

Disciplinary procedure already exists to deal with both instances, the union argues. "The fact that it has been applied so rarely is further evidence



Diana Jenkins and daughter Debbie

Learning with mother...

Eighteen-year-old Debbie Jenkins and her mother have even more in common than most mothers and daughters - for they attend the same maths class.

"It was very embarrassing at first," 34-year-old Diana Jenkins admitted. "But I've got used to it now."

Diana, from Broadbridge Heath, near Northam, West Sussex, decided to take an O level in maths in the hope of getting on to a teacher training course, but she soon found that she was out of her depth.

Then one day, Debbie, who attends Collyer's Sixth Form College, mentioned how straightforward her maths course was. Diana said she would be interested in joining the class and when Debbie told her teacher, Mr Ted Palmer, he agreed - after checking with the headteacher.

On her first day, Diana felt nervous and was teased by the boys. But now she claims her presence has had a beneficial effect on the class.

"Mr Palmer is delighted. It is good

for teachers' morale for someone to hang on their every word," she says. "Debbie says he is a nicer person when I'm around."

Diana, who paid £43.50 to attend, will earn a Certificate of Extended Education if she passes her exams.

Mr David Arnold, the school's head, said it was the first time an adult had been admitted to the school. "I'm prepared to accept others as long as it doesn't prejudice the education of the teenagers," he said.

Howard Sharron on the dilemma dividing Down's syndrome parents and specialists

Plastic surgery: cruel cut or a godsend?

An international controversy has erupted over whether children with Down's syndrome should undergo facial plastic surgery to help them integrate into schools and society.

Israeli psychologist Reuven Feuerstein, one of the main advocates of plastic surgery, was bitterly attacked by British and European delegates at the recent Down's syndrome international congress in Brighton. But American parents and professionals seemed much more open to the idea.

Professor Feuerstein claimed that Down's syndrome children were often assumed to be less intelligent than they really were because of their facial characteristics.

Plastic surgery did not remove all signs of Down's syndrome and was not meant to. But the simple surgical procedures reduced the importance of the Down's characteristics so that they did not dominate people's perception of the children, Professor Feuerstein said. As a result, they experienced a more normal intellectual development and easier integration into society.

Interim findings on the effects of the surgery showed that parents and children were pleased with the operation and would recommend it to others. By making the children's tongues smaller, drooling was reduced and eating be-

came a much cleaner and more socially acceptable activity.

"Another benefit of the operation is that speech therapy becomes a realistic option," said Feuerstein. "I have asked speech therapists in Britain if they train articulation in Down's syndrome children and they say they do not because the large tongue negates all efforts."

"In Israel, the children are given intensive speech therapy after the plastic surgery and there has been

recorded a 65 per cent improvement in intelligibility and 54 per cent improvement in articulation according to parents and teachers."

New research had shown that school children responded much better to youngsters who had had the operation, added Feuerstein.

But Dr Brian Stratford, research adviser to the Down's Syndrome Association, strongly disagreed with the morality of plastic surgery.

"I don't mind the idea of therapeutic



Reuven Feuerstein: surgery cases integration into society

surgery like the surgery on the tongue but cosmetic surgery to appease the prejudices of society is going too far."

"There is something terribly wrong with a society that wants to change a child's face through surgery simply because it's different," he added. "I find Down's syndrome children very attractive. I want to keep them as they are because they say something to me as Down's syndrome children."

Dr Siegfried Pouschel, of the Child Development Centre in Rhode Island, USA, said he was not committed one

way or the other. However, a survey had found that only 23 per cent of parents had felt their children's features had any negative effect.

There were also many anxieties about the dangers involved in surgery. Plastic surgery could sometimes raise the expectations of normality unrealistically high for both children and parents and lead to disappointments.

The distinction between therapeutic and cosmetic plastic surgery was a completely false one, insisted Professor Wechsler, of the Jerusalem Institute, who works with Professor Feuerstein in Israel. "Happiness is therapeutic," he said. "Down's syndrome children are as conscious of their physical differences as anyone."

"It is often reported to me that teachers have refused to take Down's syndrome children in their classes simply because of their looks, yet they are willing to accept much less able children with normal appearance."

Professor Feuerstein challenged Dr Stratford to say how many children with Down's syndrome, or even moderate learning difficulties, had been integrated into mainstream schools.

There were not many, Dr Stratford admitted, but this was because no large-scale attempt had yet been made to integrate these children.

Supervision of teaching practice 'not satisfactory'

by Bert Lodge

The class teacher's role in supervising and assessing students on teaching practice has yet to be worked out satisfactorily by most schools and colleges, the chief HMI for teacher training said last week.

Mrs Pauline Perry warned teacher trainers: "There must be a close liaison between the school and the college. But after looking at 50 out of 56 public sector colleges and 23 out of 27 university departments of education, historians have found this element to be almost universally weak."

She told the Standing Conference on the Education and Training of Teachers in the Public Sector that the person in the school responsible for supervising students may not be the right one for conveying what the college expected of the school.

Mrs Perry said: "It's often because the teacher concerned has not seen documents from the college which are still residing in the bottom drawer of the head's desk."

There had also been misunderstanding about another requirement of the new criteria for valid teacher training - that practising teachers should be involved in the selection of applicants for teacher training.

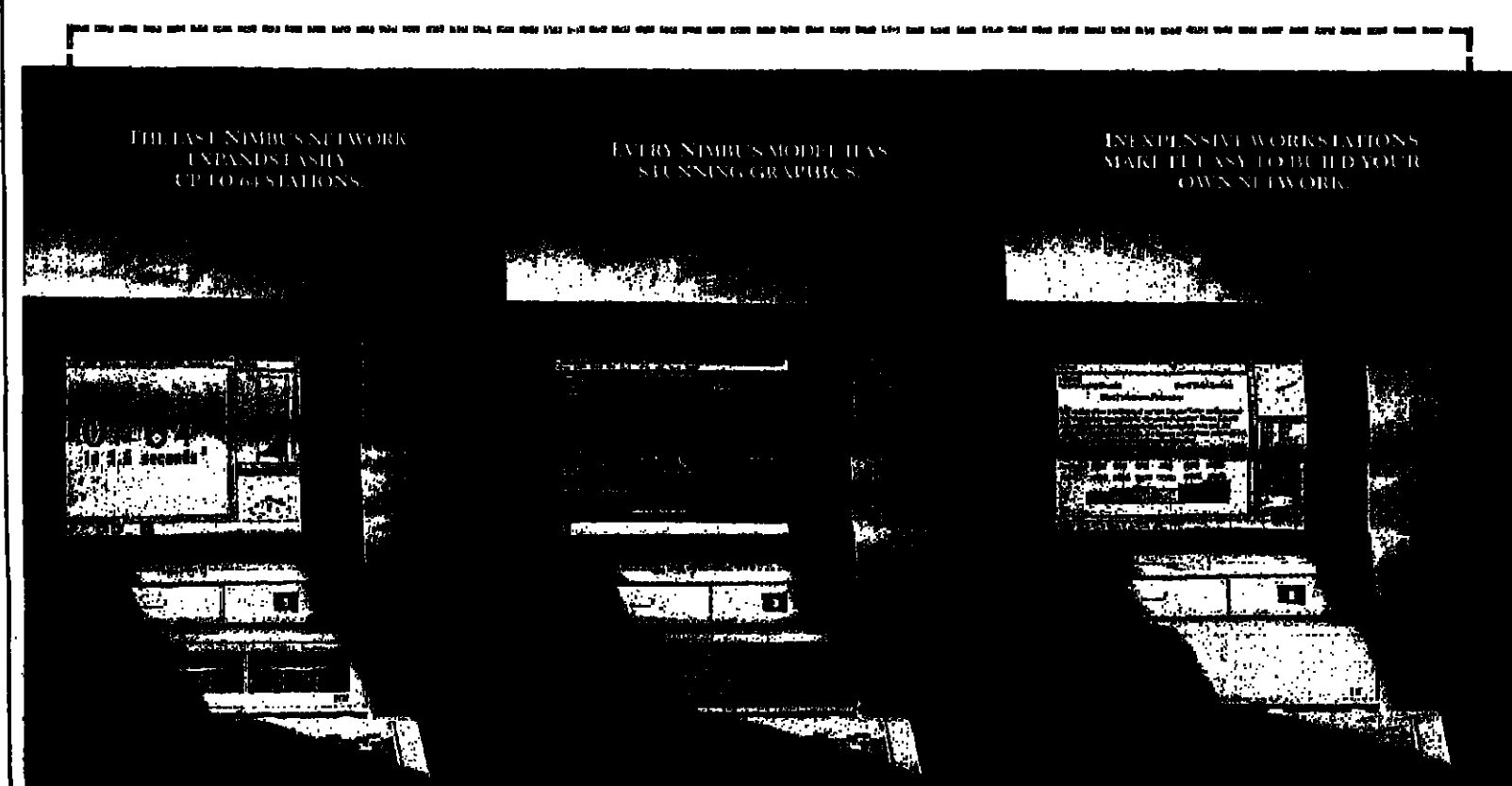
She said: "This does not mean that teachers should be on the interviewing panel all the time - that would be far too costly. My favourite model is where the applicant is allowed to spend a morning in the school mixing with pupils and staff and the school then sends a note about her to the college."



Pauline Perry

On graduates

In last week's issue of *The TES*, it was reported that nearly 24,000 teachers had obtained Open University degrees. In fact, the figure is higher - 30,800. The lower total refers to the number who have upgraded their teaching qualifications by gaining an OU degree.



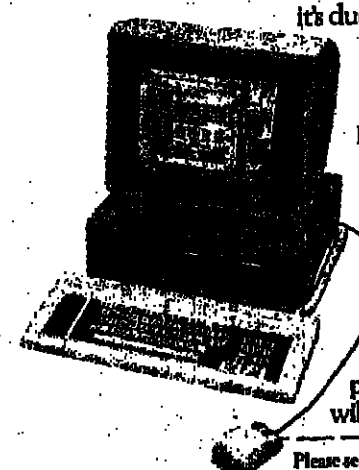
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NEWS

Schools' absolute beginners suffer worse staff level

James Meikle sifts through statistics which show that pupil/teacher ratios have worsened in primary schools

Staffing levels in English primary schools worsened between 1984 and 1985, says the Department of Education and Science.

Statistics gathered from the local education authorities show that primary ratios rose from an average 22.1 to 22.2 pupils per teacher. This was because the number of teachers fell more sharply than the number of pupils.

But the reverse happened in secondary schools where the ratios improved from 16.2 to 16.1.

The overall pupil-teacher ratio which also takes into account teachers not employed in specific schools and teachers on secondment of a term or more, also improved from 17.9 to 17.8.

In all, there were 7.2 million pupils in maintained nursery, primary and secondary schools in January 1985, a fall of 143,500 or nearly 2 per cent on the previous year.

Numbers decreased most sharply in the secondary schools, by over 3 per cent, while those in primary schools fell by 0.6 per cent and nursery school numbers remained virtually unchanged.

The total number of qualified teachers, student teachers and instructors in service was 405,252, a drop of nearly 5,000.

The fall in the number of teachers working in schools was greater - 7,238 or 1.8 per cent - because the lower figure includes teachers on secondment and teachers on occasional service, categories in which there were increasing numbers.

The highest and lowest pupil-teacher ratios were as follows:

Primary: Greater London: Sutton 24.9, Brent 18.4; Metropolitan districts: Bolton 23.9, North Tyneside 19.1; Non-metropolitan counties, excluding Isles of Scilly: Lincolnshire 24.4, Nottinghamshire 21.0.

Secondary: Greater London: Merton and Sutton 16.8, Brent 12.3; Metropolitan districts: Wakefield 17.0, North Tyneside 14.1; Non-metropolitan counties, excluding Isles of Scilly: Isle of Wight 17.8, Nottinghamshire 15.6. Overall: Greater London: Sutton 19.1, Brent 13.7; Metropolitan districts: Wakefield 18.5, North Tyneside 15.4; Non-metropolitan counties, excluding Isles of Scilly: Hampshire 19.6, Cumbria 17.2.

The ratios in the Inner London Education Authority were 17.1 in primary schools, 15.1 in secondary schools, and 13.6 overall.

● The Independent Schools Information Service last week announced an

Table 2: Maintained nursery, primary and secondary schools in England

Local education authority	Nursery schools		Primary schools		Secondary schools	
	Pupils ^a	Qualified teachers ^b	Pupil/teacher ratio within schools ^c	Pupil/teacher ratio within schools ^c	Pupil/teacher ratio overall ^d	Pupil/teacher ratio overall ^d
Greater London						
Barking	281	16	21.1	15.4	17.0	
Barnet	100	5	18.9	14.3	15.9	
Bexley	214	16	23.2	16.7	18.3	
Brent	287	11	18.4	12.3	15.7	
Bromley	287	11	23.3	16.4	18.3	
Croydon	308	20	22.1	15.4	17.3	
Ealing	181	10	20.1	14.9	16.4	
Enfield	186	15	22.8	13.1	14.6	
Haringey	186	15	18.9	13.1	14.6	
Harrow	186	15	21.0	14.3	16.7	
Havering	186	15	22.7	15.6	17.3	
Hillingdon	186	15	22.4	15.7	17.3	
Hounslow	186	15	20.0	15.7	16.8	
Kingston upon Thames	186	15	22.2	15.2	17.2	
Merton	186	15	21.8	15.8	17.3	
Newham	186	15	20.2	13.8	16.0	
Redbridge	186	15	23.6	13.0	15.1	
Richmond upon Thames	186	15	21.0	16.4	17.8	
Sutton	186	15	24.9	15.8	18.1	
Waltham Forest	186	15	21.1	13.8	16.4	
Total Outer London^{a,b}	2,516	143	21.3	15.1	16.7	
Inner London	3,103	184	17.1	13.1	13.6	
Total Greater London^{a,b}	5,621	327	18.8	14.4	16.6	
Metropolitan districts						
West Midlands	1,821	87	22.8	18.3	19.0	
Birmingham	246	9	22.3	18.8	18.8	
Dudley	271	8	23.2	15.6	16.9	
Sandwell	122	6	22.3	15.1	17.0	
Solihull	392	20	23.3	18.2	18.9	
Walsall	438	14	20.8	14.6	16.6	
Wolverhampton	412	20	19.3	14.8	15.8	
Merseyside						
Knowsley	380	21	21.6	14.9	16.3	
Liverpool	42	2	20.8	15.8	17.2	
St Helens	159	8	22.5	15.5	17.6	
Sefton	157	8	23.3	15.6	18.4	
Wirral	157	8	23.7	16.0	18.8	
Greater Manchester						
Bolton	370	17	23.9	15.8	18.1	
Bury	102	5	22.4	15.4	17.1	
Manchester	438	27	22.1	14.3	16.5	
Oldham	483	24	22.9	18.8	18.1	
Rochdale	483	24	22.5	14.9	16.7	
Salford	875	30	21.3	15.0	16.9	
Stockport	502	20	23.2	18.2	18.3	
Tameside	187	13	23.3	15.7	17.8	
Trafford	108	6	22.9	18.4	18.3	
Wigan	108	6	21.2	15.1	16.9	
South Yorkshire						
Barnsley	83	5	21.1	16.2	17.2	
Doncaster	417	20	21.2	16.4	17.7	
Rotherham	456	21	21.8	18.6	17.2	
West Yorkshire						
Bradford	429	27	20.2	15.8	17.0	
Calderdale	65	3	21.8	15.5	16.9	
Kirklees	383	17	22.1	16.8	18.1	
Leeds	189	8	22.5	16.3	17.7	
Wakefield	282	13	21.7	17.0	18.5	
Type and Wear						
Gateshead	30	2	19.2	15.4	16.3	
Newcastle upon Tyne	334	14	19.3	14.4	15.7	
North Tyneside	171	9	18.1	14.1	15.1	
South Tyneside	420	22	20.8	15.9	17.4	
Sunderland	538	29	21.9	15.9	17.4	
Total Metropolitan	10,422	527	21.8	15.8	17.4	
Non-Metropolitan counties						
Isles of Scilly						
Avon	1,255	60	13.5	11.4	12.0	
Bedfordshire	680	46	24.1	15.9	15.7	
Bedfordshire	1,074	61	23.2	17.0	17.8	
Buckinghamshire	257	10	24.2	18.4	18.3	
Cambridgeshire	369	16	23.8	16.5	16.9	
Cheshire	482	20	22.8	17.0	18.0	
Cornwall	140	7	22.2	16.3	18.2	
Cumbria	384	16	23.5	16.9	17.6	
Derbyshire	960	39	21.1	16.7	18.5	
Devon	92	4	23.4	16.9	18.5	
Dorset	92	4	23.7	16.9	18.5	
Durham	1,288	65	23.7	17.1	18.5	
East Sussex	148	7	22.0	16.8	18.5	
Essex	144	6	22.9	17.0	19.0	
Gloucestershire	130	6	23.1	16.8	18.5	
Hampshire	130	6	24.1	17.4	18.6	
Hereford & Worcester	931	44	24.1	17.4	18.6	
Hertfordshire	571	28	22.2	16.0	17.4	
Isle of Wight	45	2	22.8	16.2	17.4	
Kent	45	2	23.6	17.8	19.0	
Leicestershire	1,768	86	22.6	17.0	18.3	
Lincolnshire	24	1	22.9	15.1	17.8	
North Yorkshire	225	10	24.4	17.2	18.6	
North Yorkshire	180	9	22.1	15.5	16.9	
North Yorkshire	184	9	22.0	15.8	18.0	
North Yorkshire	303	18	22.2	16.5	17.7	
Nottinghamshire	84	3	23.3	16.9	17.8	
Oxfordshire	546	20	21.0	17.5	18.2	
Shropshire	284	13	23.9	16.9	17.8	
Somerset	80	5	21.5	15.3	16.9	
Staffordshire	1,431	60	24.2	17.8	19.2	
Suffolk	54	4	22.4	16.1	17.3	
Surrey	302	19	22.3	16.8	18.5	
Warrickshire	377	18	22.6	16.9	18.7	
West Sussex	292	10	23.4	16.9	19.2	
Wiltshire	292	10	23.4	17.5	19.2	
Total Non-Metropolitan counties	14,791	718	22.9	16.7	18.5	

- Including centres for teaching English as a second language.
- Including middle deemed primary schools with primary schools.
- Including middle deemed secondary schools with secondary schools.
- These authorities provide some or all of their provision for post-16 education in tertiary colleges. Secondary schools exclude tertiary colleges which are establishments of further education.
- Counting each part-time pupil under five as 0.5.
- Including the full-time equivalent of part-time teachers.
- Pupil/teacher ratios are ratios over all primary and secondary schools in each local education authority. They do not reflect the actual deployment of staff among different schools, nor the size of classes in which pupils are taught.
- Including student teachers and instructors.

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NEWS

Pay bonuses proposed to counter poor recruitment

by James Meikle

Teachers of subjects suffering staff shortages should get more money than their colleagues in an effort to ease recruitment problems, the Government has been told.

A figure of £1,000 extra a year has been suggested for specialists in areas such as maths, physics, craft, design and technology, French and English language.

The latest proposal for differential pay levels comes from the Managerial, Professional and Staff Liaison Group, which includes 20 "independent trade unions", including the British Medical Association, the United Kingdom Association of Professional Engineers, and staff organizations in chemical, scientific and aerospace fields.

The Association of Polytechnic Teachers is the only organization concerned with a direct interest in the education service.

The proposals have been sent to the Department of Education and Science, the Welsh Office and the Confederation of British Industry - but not to the local authority employers or unions involved in the present Acat talks on long-term pay and conditions.

Mr Wilfred Aspinall, executive director of the MPT, said there was an argument for differential salaries whatever came out of the Acat talks. The new system of £1,200 bursaries for postgraduate student teachers with appropriate qualifications in maths, physics or CDT was not enough. Pay prospects in careers outside teaching were still better.

He said: "There has got to be a differential rate with people in certain areas of teaching where there is an obvious shortage which could affect the service."

Mr Aspinall said that the whole debate about pay was too important to be left only to employers and teachers. Extra funding could come either through Government control of education or through grants or changes in local government finance and a "community tax".



Fruits of their labours: A campaign to help foster art in schools in London's East End has led to Sabia Uddin, aged 14, and Sufia Miah, 11 (right), having their paintings displayed in a local dental hospital. The girls, from Mulberry Girls' School, are pictured at their exhibition in the London Hospital Dental Institute's Department of Child Dental Health with Vivien Blackett, the artist-in-residence.

Appointments warning to Ulster school governors

by Carmel McQuaid

School governors in Northern Ireland have been warned that they can be held personally responsible for any court damages that result from breaches of regulations in making appointments.

A memorandum is being circulated which impresses "on governors that compensation awarded under the Fair Employment Act 1976 and the Sex Discrimination Act 1976 can be sought by the aggrieved party."

The memorandum also sets out general employment and promotion procedures, guidelines, along with details of the Commissioner for Complaints Act.

Seminars for principals of controlled schools are to be held to clarify the governors' role in school management

as well as the procedures for recruiting staff.

This precaution follows a £2,000 compensation award to a cleaner in Maghera High School in Co Londonderry, who sued the management committee on grounds of religious discrimination. This was the second such case at this school pursued by the Fair Employment Commission. On both occasions the case was met by the Department of Education - in the light of board members not being properly apprised of the law.

The appointments guidance has been welcomed by the Equal Opportunities Commission, which has long campaigned for redress of the "bad procedure" reflected in the 15 complaints investigated each year.

"Lack of criteria and favouritism would appear to be tremendous bugbears in the whole system," states Beverley Jones, the EOC chief enforcement officer. "Boards have not been ensuring that adequate procedures are being followed. Because each one is individual, we find an appalling lack of coherent practice and a crying need for guidelines."

The EOC also warns that the education and library boards have been at fault in ratifying appointments made in maintained schools, without ensuring that adequate procedures had been followed - since maintained schools, being independent rather than public bodies, are not answerable to the Commissioner for Complaints.

In brief

ILEA picks tertiary team

The move to tertiary colleges in inner London is to be led by a high-powered, two-woman team.

The ILEA announced last week that Mrs Molly Hattersley, formerly head of the authority's teachers' branch, has been appointed assistant education officer for tertiary development. Ms Margaret Maden, currently director of Islington sixth-form centre, is being seconded as principal tertiary adviser.

The team will be strengthened by the secondment of Mr Terry Povey, an inspector for further, higher and community education.

New director

Mr John Foster, Hereford and Westchester's senior adviser for computers and information technology, has been appointed director of the national Microelectronics Education Support Unit.

The MESU, which starts work this summer, is being set up to replace the Microelectronics Education Programme. It will, however, have a much smaller budget than MEP.

The chairman of the MESU, Mr Mike Nichol, the Wirral's director of education, was appointed in March.

Textile grants

A £5.4 million scheme to enable universities and colleges to invest in the latest textile equipment has been announced by Mr Paul Channon, Secretary of State for Trade and Industry. Mr Channon said the funds would be concentrated on institutions which specialized in textile education, and would meet 50 per cent of equipment costs.

Governors sought

Parents and members of the black community are urged to get involved in school governing bodies in a video launched last week by the Inner London Education Authority. Called *A Voice in Our School*, it is the first in a series of four videos about school governors and equal opportunities. It was launched at De Beauvoir Institute school, Hackney, where it was filmed.

Merger approved

Balling College of Higher Education has strongly backed the proposal that it should merge with the West London Institute of Higher Education.

The college's academic board voted to seek a legal merger by September 1987, with the new institution being designated as either a polytechnic or university. The merger proposal has come from the National Advisory Body, which advises the Government on public sector higher education.

Pollution fighters

Schools are being invited to submit anti-pollution ideas for the 1986 Pollution Abatement Technology Awards. Sponsored by the Environment Foundation, the scheme is open to all UK-based universities, colleges, schools, industries and individuals. The closing date for entries is June 30, 1986. Further details can be obtained from the Pollution Abatement Technology Award, Royal Society of Arts, John Adam St, London WC2N 6EZ.

New premises

The University of Liverpool's Faculty of Education formally moved into new premises this week, and celebrated with a programme of public lectures and open days. An honorary degree was conferred on the broadcaster and author Melvyn Bragg.

The faculty was formed three years ago by bringing together the university's School of Education and the Institute of Extension Studies. Its two new buildings are both in the university precinct.

Affluent South to import 'surplus' YTS trainees

Youngsters in some areas of high unemployment are to be invited to join a "get-on-your-bike" version of the Youth Training Scheme. They will be offered a chance to live and train far from home in a prosperous corner of Britain where "too many YTS places are chasing too few kids".

The arrangement, being pioneered by a consortium of employers and college staff in Sussex with the personal backing of the Employment Secretary, could become a model for away-from-home training in the YTS.

The Sussex Training Agency, run jointly by employers representing 470 West Sussex firms and Chichester College of Technology, has around 100 vacancies most of the time in its 360-place scheme.

With the area's overall unemployment rate about 8 per cent, most school-leavers can get straight into jobs outside the scheme. So the agency is asking careers services in selected areas, starting with Cleveland, to send it the youngsters who cannot find worthwhile YTS places in their home towns.

The trainees will be offered free of choice of accommodation in boarding houses, small hotels, or the college hall of residence. The MSC has agreed to pay up to £35 a week of its cost. The agency will make up any deficit and pay the fare for a weekend trip home.

Edited by Mark Jackson

once a month for every trainee.

There is a wide range of choice of training. Nine of the 11 occupational training families, the groups into which the MSC divides all the occupations covered by the YTS, are available within the Sussex scheme. The youngsters will be told there is every chance of getting permanent jobs in the area at the end of their training: more than nine out of every 10 of the Sussex agency's trainees so far have gone straight into jobs.

Mr Bryn Davies, the head of the college's vocational preparation department who acts as the agency's chief officer, says many of the incoming youngsters will be taken on as employees from the start.

"A lot of the employers here prefer to do that, paying most of the going rate for the job when it is above the YTS allowance. I understand it is not unknown for some others to pay the standard allowance, and then add on a backhand of a fiver or so a week."

Mr Davies and colleagues already have experience of the help youngsters arriving in the area are likely to need. There are a handful who are already being trained residentially, attracted from other parts of the country by

opportunities to learn specialisms such as horse riding which are difficult to find elsewhere.

The agency, which already has a comprehensive briefing pack which starts with basic information such as where Sussex is and how to get there, is well aware of the problems and anxieties of 16-year-olds away from home who are faced by different local ways and customs. It has prepared a system of close support and counselling. New arrivals will be visited daily at first by a member of the agency staff, with meetings tapering off later to once a week and then monthly.

In addition, trainees will be encouraged to consult their tutor, agency staff, or careers officers on their weekly day-release sessions at the college. Training progress, too, will be carefully monitored. Mr Davies says: "We have had a lot of time in which to work out the arrangements. We first put this up to the MSC at the beginning of last year, but they were not very enthusiastic."

Then we told Mr Peter Morrison, who was the junior minister responsible for the YTS, what we had in mind and he decided it was a good idea. But before much could be done, he was moved to another department. "In February, Lord Young, the Employment Secretary, visited Chichester, and he was very keen on the plan, so that encouraged us to go back to the MSC and push."

"We had to convince them that their own rules did permit them to fund residential places of this kind."

There would appear to be some irony in the MSC paying out an extra £35 a week to enable youngsters to get a reasonable choice of YTS training. One reason for the limited range of schemes in high unemployment areas is that the commission is no longer willing to pay the full costs of running the voluntary agency and local authority projects on which many such areas have depended.

Mr Dermot Dick, Institute of Careers Officers spokesman and Durham county careers chief, said there was already a tradition of youngsters from the north-east training with individual firms in the west Midlands, but this appeared to be the first attempt by a large YTS managing agency to organize such training.

"The institute would need to satisfy itself that the financial and support arrangements fully met trainees' needs and if they did it would welcome the scheme and publicize it throughout the careers service."

The Sussex initiative could provide a model for a very useful arrangement. Mr Dick says: "Obviously, it would be more relevant to the needs of some areas than to others, and careers offices would have to approach the whole question of selecting and advising youngsters very carefully."



The course considers the difficulty confronting senior officers faced with a potential riot.

Teaching the law about order

Police officers are turning to further education to improve their ability to maintain public order. More colleges are including public order modules in the BTEC higher courses they run for police officers.

A Further Education Unit report on public order teaching says that its increased demand is in part a response to the current need for the police to establish better relations with the public to prevent disorder occurring.

The report points out that policemen believe that recent public disorders have made them the target of criticism and says that they want to learn more about the causes of disorder as a means of avoiding further criticism.

The courses aim to help police officers understand the underlying causes of

disorders, the legal context, and the problems that arise in preventing them.

Colleges do not attempt to teach the physical skills of policing disorders - "to aim at the achievement of skills (for example, how to use a riot shield) which police forces themselves achieve through their training would be both inappropriate and, in all probability, impossible," says the FEU.

But some aspects of operational policing have to be considered "if the course is to have vocational relevance and credibility," it points out, citing the need to examine the options and difficulties confronting senior officers faced with the making of a riot.

The FEU warns teachers against risking their own credibility, however, by straying into discussions of tactics. It

suggests that one answer to the problem may be to use police officers to teach on the courses.

At one college a policeman is used to teach the whole of the course, while at others there is little or no involvement by any police in the teaching. To teach their colleagues successfully, the FEU insists, policemen have to learn not to see themselves as "instructors" but to understand the very different aims and methods of higher education.

One college, the Chelmer Institute of Higher Education, Essex, uses a policeman who has degrees in law and politics to teach about half of the module.

Teaching public order to police trainees - an FEU/FICKUP project report by Sarah E Hope, Chelmer Institute of Higher Education.

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Inspectors admit they are worried by ghost stories

by Barry Hugill

Primary teachers in inner London are being warned against using reading schemes that feature stories about ghosts and witches.

Senior ILEA inspectors have asked headteachers to pass on the warning following complaints from parents that children have been disturbed by lessons on the supernatural.

In addition, secondary teachers are being told to be on the look-out for computer games "with a strong element of fear".

The inspectors are also concerned about lessons dealing with the Devil. Many religious people fear that teaching about the occult could be seen

as an endorsement of it, they say. An ILEA spokesman stressed that the authority was not "banning" lessons on the supernatural.

"The inspectors are registering their own fears in the hope that it will help heads in determining policies for their schools. They are also putting the record straight by pointing out that the term 'witch' was often applied to women living alone and who were the victims of superstition and cruelty."

ILEA only receives about two or three letters a month complaining about teaching on the occult, he added.



Honorary doctors: Patrick Nugent (left); Dame Peggy Ashcroft, and Lord Gregson.

Dame Peggy's doctorate

Dame Peggy Ashcroft, the veteran actress most recently seen on screen in *Jewel in the Crown* and *Passage to India*, is among 10 people awarded an honorary doctorate from the Open University this year.

Other recipients are Lord Gregson, executive director of Falvey Holdings; Professor G A Barnard and Leslie Fox, mathematicians; Sir Clifford Butler, vice-chancellor of Loughborough University; Professor Boris Holoborin, specialist in distance education; Patrick Nugent, the former director of Leeds Polytechnic; Professor Sir Randolph Quirk, former vice-chancellor of the University of London; Johannes Rau, minister for science and higher education for North Rhine-Westphalia, West Germany; and Dr. Wicht Brian-An, director of the Open University of Thailand.

Honorary masters degrees go to Brian Billings, a Milton Keynes schoolmaster, and a playwright, David

Hannam, MP for Exeter; Brendan Harkin, chairman and chief executive of the Northern Ireland Labour Relations Agency; Frank Downes, the musician; Ernest Field, secretary of the Open College, Hong Kong; and Mrs Matilda Kestler, a magistrate.

● The University of Warwick has announced the honorary degrees it will confer in Coventry Cathedral on July 21. A doctorate of laws is awarded to the university's first vice-chancellor, Lord Butterworth, CBE, and Lady Butterworth is awarded a master of arts.

Peter Maxwell Davies, CBE, the composer, and Jacquetta Hawkes, OBE, author and archaeologist, are both awarded a doctorate of letters. A doctor of science degree goes to Lord Kilgus Norton who as Harold Roxbee Cox was part of the team that designed the jet engine during the Second World War.

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Computers: time to key in more training

JAPAN

Barbara Casassus on plans to keep ahead in the micro race

University and college places for students studying systems analysis need to be doubled from 6,500 to 13,000 by 1991, according to an advisory panel to the Japanese Education Ministry.

The six-member panel, chaired by Toshiyuki Sakai, Professor of Engineering at Kyoto University, also recommends that universities should provide information science instruction to arts and social science undergraduates and more courses at post-graduate level.

It wants to see an increase in the 19 universities which offer doctorates and the 39 offering masters degrees, and recommends reorganizing existing institutions and establishing new ones which are more flexible.

The panel's proposals are prompted by the Ministry of International Trade and Industry's prediction that the rise in the number of systems analysts and computer programmers from 600,000 in 1983 to one million in 1990 will be 600,000 short of requirements.

At the same time, postgraduate studies, the Cinderella of higher education, as corporations prefer to train their own personnel in a system of job rotation, are becoming more important for technology if Japan is to keep ahead of its international competitors.

Computers in schools are also a focus of attention. Japan has trailed

behind the United States and Britain. Now figures to be released shortly by the Education Ministry will show that about 50 per cent of upper secondary schools, 30 per cent of lower secondary schools are equipped with microcomputers. These figures compare with 58.4 per cent, 3.1 per cent and 0.6 per cent



three years ago, when the diffusion rate was pitifully small. The upper secondary schools involved had an average of only 4.2 micros each, the lower secondary 1.4 and the primary schools two.

In the year ended last month, 5,000 new units were bought out of a 20-billion-yen annual budget for five years.

Another advisory panel to the Education Ministry, which should submit its final recommendations on computers in schools next year, will probably advocate more emphasis on computer-assisted instruction than on computer studies.

Professor Hiroshi Azuma, panel chairman and Dean of the Faculty of Education at the prestigious state-run Tokyo University, says that the widespread home ownership of personal computers gives children ample opportunity to learn basic programming.

Moreover, each elementary school has at least one or two teachers capable of programming computers, a significant

advance on the Japanese side. But a shortage of educational software, is on the way to being resolved. Experimental schemes under the auspices of the Ministry and the National Institute for Educational Research are being set up with selected schools to develop software, with or without help from the private sector, and to study the use of the hardware.

Reasons to be cheerful

UNITED STATES

Bill Norris on a study that shows happy teachers

Amid all the future in America about teacher shortages, dissatisfaction with pay and conditions, and the massive flight from the profession, a new report has emerged which stands this received wisdom on its head.

According to a study published by the National Centre for Education Information, a private organization affiliated with a group of education newsletters, 90 per cent of state school teachers are satisfied with their jobs. What is more, the report points out that for women, who make up 69 per cent of the teaching workforce, the average pay of \$680 (£440) per week is well above the average for college-educated females doing other work.

Some due to the Panglossian tone of NCEI's report, so greatly at variance with the noises coming out of the teachers' unions, may lie in the fact that it was partly funded by Mr William Bennett's Education Department. Mr Bennett is known to take a more optimistic view of these matters.

The director of the study, Ms Emily Feinstein, did admit that some 55 per cent of the 1,392 teachers questioned were dissatisfied with their salaries, but added: "They're in teaching for reasons other than money. They want to help young people develop and to use their own minds and abilities. But even if they were in it for the money, teachers are doing quite well."

And while it was true that when asked to rate their satisfaction with their

work, 90 per cent of teachers gave a rating of 4 or 5 (on a scale of 1 to 5), the average rating for all workers was only 3.2.

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cent of former teachers said they would need a better salary, 22 per cent wanted better working conditions, and 13 per cent a more fulfilling job, better benefits or a chance for advancement. Significantly, 21 per cent answered a question that was not even asked: nothing whatsoever, they said, would bring them back into teaching.

A majority, 57 per cent, reported that they had been under great stress several times a week in school. Only 22 per cent said that occurred in their new jobs, and the report concluded that a reduction of stressful conditions for teachers or moves to help them cope with stress might help to stem the departures.

The Harris survey found that more men than women were deserting teaching, and that more than half of them had been moonlighting in a second job before finally making the move. Most had been in secondary, rather than elementary schools.

Mr Albert Shanker, president of the American Federation of Teachers, commented: "If we're to avert a staffing disaster in the schools, we need to devote just as much attention as to why we're losing so many teachers as we do to getting new ones. After all, we wouldn't need so many new ones if we weren't losing so many."

And Ms Mary Hatwood Futrell, President of the rival National Education Association, said the saw professionalism as the major issue raised by the Harris survey. "Teachers want a professional salary, professional prestige and professional autonomy," she said. "In other words, a voice in the decision-making process that affects students' intellectual and emotional development."

Ms Futrell has lately been loud in her claims that more money needs to be spent on education, especially on teachers' salaries, if educational reform is to become a reality.

She has called for an increase in education spending of between 20 and 25 per cent. But Mr Bennett made it clear that she was not going to get it. "Only the NEA," he said, "can be gloomy in reporting that teachers' salaries have increased by 7.3 per cent while the rate of inflation is only 3.2 per cent. Most Americans would think this is good news. I certainly do."

Teachers' salaries were increasing, education reform is continuing, and the NEA should stop moaning, cheer up, and help out in the effort for better schools and teachers.

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Stress puts strains on school funds

AUSTRALIA

Luis Garcia reports how classroom tensions are forcing costly early retirements

Teacher unions in Victoria have launched a major campaign to force the state government to provide rehabilitation and welfare services for teachers who suffer from stress.

The Victorian Teachers' Union and the Teachers' Federation of Victoria say the number of teachers retiring early because of stress-related illness had increased considerably in recent years. These premature retirements currently cost the government at least \$388 million (£16.5 million) a year.

The unions allege that half the claims made by teachers under the workers' compensation insurance scheme in 1985 were stress-related and cost more than \$415 million to settle.

As part of the campaign, the unions have commissioned surveys to ascertain the extent of the problem and its effects on the education system.

A senior psychologist with the unions, Ms Sue Hosking, said it was common for teachers under stress to develop a phobic reaction and become terrified of school.

The main factors contributing to stress were lack of support from administration for teachers, changing workload, discipline problems and increasing pressure from parents.

Parents who sat in on school councils also tended to cause stress when they refused to support teachers or criticized them openly.

The problem of stress-related illnesses in teachers is not confined to Victoria. A survey conducted at the University of New South Wales two years ago found that a third of NSW teachers saw their jobs as very or extremely stressful.

Another recent study in NSW measured the changing heart rate of principals in a number of primary schools over an average working week.

A principal from a large Sydney primary school told the researchers he had never thought his job was particularly stressful.

The research revealed, however, that there were periods when he was under considerable stress, solving problems dealing with staff, pupils and parents.

Although the researchers found that he was under considerable stress at times, he had the ability to remain cheerful and run a reasonably happy and effective school.

He coped with stress by exercise at weekends and delegating responsibility to other staff.

Another had a simpler method: he reloaded a game of squash at the end of each school day in which he imagined the ball to be a troublesome parent.

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Arabic study breakthrough announced

ISRAEL

Shalva Weil on moves to ease in a new second language

Knesset is, however, slim for it lacks both the support of the Minister of Education and the Ministry's staff. At present, there is no national supervisor of Arabic studies, although admittedly this is a temporary lacuna, and only 20 teachers are enrolled in Arabic language workshops this year.

Another obstacle in Mr Raz's path is the debate over which kind of Arabic should be taught: literary or spoken.

The greatest obstacle to Mr Raz's proposal is, however, ideological. In a Knesset education committee debate on democracy and co-existence, the Minister of Education admitted that the Arab-Jewish meetings he had so strongly advocated had met with unexpectedly strong resistance from Jewish religious quarters.

Nevertheless, Mr Navon has promised that he will make available large sums of money - he mentioned \$200,000 from next year's education budget - to develop an expanded Arabic curriculum.



For many immigrants, Arabic was their mother tongue.

Mafalda urges parents to vote and carry the LODE

SPAIN

Sarah Jane Evans looks at the first school councils elections



go on being as Christian as they were or perhaps even more so" and are urging parents to vote. The archbishops have also been encouraging parents to take part in the elections. The Episcopal Commission on Education has as its slogan: "Participate - to guarantee a Christian education in schools."

With a £500,000 budget and the assistance of a little girl called Mafalda, a popular cartoon character, the education ministry last month launched an advertising campaign to promote the first-ever elections to the new school councils (*consejos escolares*).

Every state-subsidized primary and secondary school is to have a school council consisting of the headteacher, the director of studies, a local education officer, a member of the administrative staff, eight teachers, five parents and three pupils aged 11 or over (the exact number varies according to the size and type of school). Council members will be chosen by fellow members of the same group; thus parents choose parents.

The council will have wide-ranging powers; among these it will choose the headteacher, oversee admission procedures, control the budget, approve the educational approach of the school and the curriculum, and have charge of the school rules, and matters of discipline.

The school councils were part of reforms of the LODE, the Right to Education Law. Initially the proposal was not welcomed by the Catholic sector and the private schools that were partly state-funded. Both opposed the excessive powers, as they saw them, of the councils, and in particular their power to choose the headteacher. They feared this would change the nature of the school.

They have now changed their views ("despite the LODE our schools can

scaled in favour of humanities, and the more recent but equally devastating 1969 reform of the leaving exams.

The latter was intended to streamline a cumbersome procedure, but instead it merely over-simplified it and produced what can only be described as a reverse domino effect; the simplifying mechanism provoked the tailoring of courses to the leaving exams the end result of which has been a gradual downgrading of all five years.

To drive their point home, the commission compared Italy's *maturita* scientific programme to France's *Baccalauréat* and reported that the written maths exam of the latter is at a level that could be passed only by second-year Italian maths or engineering university students.

The commission concluded that, in

comparison with other countries, mathematics is under-represented in the so-called *scienze*, where one would expect to find maths in prime position. It accounts for an average of 13 per cent of the total timetable, an embarrassingly poor showing when compared with France's 25 per cent and Germany's 20 per cent in schools of equivalent type.

Further, while experimental sciences occupy 22 per cent of the French curriculum, 23 per cent of Swedish and 33 per cent of the German, they account for a mere 15 per cent of the Italian.

A proposed reform of the country's upper secondary programmes, which has for years migrated back and forth from House to Senate like a poor relation, has now come to a complete standstill in the light of these findings.

Mr Bennett's response to rub salt in the wound is adding one other

LETTERS

Kiss of death from parental choice

Sir - Reading Mrs Catherine King's letter, (TES, April 11) about many schools being hollow shells of what they were before, reminded me sharply of the experiences of some of us over the past few years who have seen our schools decline in exactly the way she describes, but not because of the industrial so-called action.

Hollow-shell genesis is now built into the system. One day last September I watched the coaches and buses (which cost thousands per year to hire), taking the major proportion of our pupils miles away to their homes near a perfectly good school forced to close. Other pupils crowded on to public

service buses to get to their homes near other schools.

Then, a little later, coaches arrived from those other schools and disgorged the children living locally. I reflected that none of those children, departing or arriving, was available for the "rich variety of activities" Mrs King mentioned - they all had to get their bus. What a stupid, costly, inefficient and largely unnecessary exercise!

None of the schools involved can organize choirs and plays or run clubs without a tremendous amount of peripheral organizing and enduring goodwill of distant parents or total reliance on "local" pupils. To very

many parents, distant schools - like the great on the other side of the fence - seem much better than what they see every day, "warts and all". And anyone who teaches in an ex-secondary modern school will know it takes at least a decade before local parents cease to equate the school with "second best" education.

So some stalls in the educational market place, regardless of the high quality of their goods, are destroyed by the latest sacred cow which wanders about haphazardly, unrestrained, uncontrolled and almost worshipped. The cow's name? Why, it is parental choice, of course, although a more

accurate name would be parental prejudice.

I must admit that I have never been able to understand the logic of parental choice. If you don't like the state system, you are free to pay for your own. If you have religious or single-sex preferences, they can be accommodated. All this makes sense, but surely, if you opt to accept the free service it is unreasonable to expect you to take the nearest supply and for you to help improve it if you are not satisfied?

M H COCKBILL
30 West Way
Rickmansworth
Herts



Boys' talk

Sir - Reading Bryan Chapman's article "Potentially disastrous" (EXTRA, TES, April 18) I gained the impression that he was primarily interested in the standards of the most able boys in the secondary sector at the expense of raising the educational standards for all. His concern for students' welfare seems to take second place to his concern for science teachers' status and career opportunities.

I was also surprised to read that a lecturer in education he expressed ignorance of the many reasons why science in the primary sector can be seen as "a good thing". Furthermore, I was worried by his apparent lack of concern for the current discrimination against girls in science teaching. Primary science and integrated science (both of which he apparently values so little) are potentially very useful weapons in the fight against such inequality.

In an attempt simply to correct other facts in the article, can I emphasize that the two new advisory posts had

Why you cannot storm education's citadels of power

Sir - It was good to read a Scale 1 teacher (Stephen Austin, TES, April 24) prepared to state what many of his kind feel but dare not utter. My 30 years in industry before joining the lower ranks of "assistant" teachers, however, persuades me that human institutions are for the most part impervious to the winds of change. Only a hurricane will cause them to collapse, then to be replaced by similar edifices differing only in surface cladding.

I, too, think that hierarchical assessment of teachers will fail - as it already does - but not because of any mass protest by unions and their members. It will fail because the rationale of teacher training and assessment is based on the bland assumption that

teaching is a teachable skill.

In my view, it is not. But to press the point to heads, advisers, inspectors, et al, as I have done is to meet with a blank wall of silent indifference. It is, after all, far more pleasant and profitable to criticize the efforts of others than to do the job oneself and to expect any open dialogue leading to a shift in real power is wishful thinking. It should always be remembered that in matters of power it does not matter what is said, but how it is said and - above all - who says it.

D W SOUGHAN
29 Boughton Road
Moulton
Northants

Not HMI inspired

Sir - I'm afraid Mike Durham got most of it wrong in his article "HMI criticism leads to advisory shake-up" (TES, April 18). Many of us would argue that the same could have been said of the original 1984 HMI report on "some" Haringey schools. And that is the first point to stress: HMI did not embark on a whole-authority report but, in agreement with the i.e.a.s, chose to look at 14 schools, all but one of which served the more deprived eastern end of the borough.

In an attempt simply to correct other facts in the article, can I emphasize that the two new advisory posts had

nothing to do with any HMI report - the need for an adviser with INSET responsibilities had been identified years ago and "political and social literacy" was not a curriculum gap identified by HMI nor, of course, is it a subject that trips too readily off their tongues.

The only joint HMI/i.e.a. project that I know of is one concerned with the identification and dissemination of good practice in Haringey schools. There has never been a collaborative project with HMI on "enhancing the effectiveness of advisory services". Nor does Haringey have a TVEI scheme as your report states: members have made a clear decision not to support such a venture, and I trust they

living in the covenant of the League of Nations - which led to the belatedness of Britain's eventual rearmament, for attempting to appease Hitler, and for getting Britain into a war in September 1939 which the chiefs of staff had warned Britain could only win if it were a long war, and the Treasury had warned we could only afford it if it were a short war.

The "sound judgement" which Mr Holt believes was conferred by British education resulted, first, in Britain's complete bankruptcy in the spring of 1941, and thereafter in the loading on Britain's ruined economy and backward industry the open-ended burden of "New Jerusalem" - Beveridge and all that - as documented and described in *The Audit of War*.

CORRELLI BARNETT
Churchill Archives Centre
Churchill College
Cambridge

Plane truth 2

Sir - There were, in fact, three Messerschmitt fighter aircraft in the Second World War - the ME 109, ME 110 and ME 262.

The ME 109 was, as stated, equivalent to the Spitfire, more or less. The ME 110, "the dead loss" quoted by Mr Holt (TES, April 25) was, in fact, a very successful night fighter/intruder and low-level fighter bomber.

Its reputation and bad name stems from its failure as a dayfighter during the Battle of Britain.

The aircraft Hitler wanted to turn into a bomber was the ME 262 jet fighter. A great fighter - lacking in numbers and delayed into service by about a year on Hitler's demand.

I realize that this has little to do with the educational argument of the original letters. But if people make comparisons and quote what they consider to be facts it would be nice if they checked them first.

ANDREW MARSHALL
43a Polham Road
Gravesend
Kent

Whose benefit?

Sir - Last year, you published a letter from me following attempts to have the DHSS reconsider their views on the payment of Supplementary Benefit to Easter leavers.

Through the pages of *THE TES* may I both thank your readers and also some misgivings concerning the latest DHSS ruling on Easter leavers?

First, pupils who are 16 before January 31 may leave school at Easter, return to take examinations and still qualify for Supplementary Benefit.

Second, next year's school holidays fall in such a way that Easter to half-term is little more than four weeks. Will students see this four-week period as irrelevant, leaving

Easter and take the money? The cash incentive of excess Supplementary Benefit over forfeited child benefit at current rates will be £246.40 per student.

Third, students in a third-year sixth and 19 during the academic year can claim neither Supplementary Benefit nor child benefit.

Does the Government want to encourage young people to improve their education or do they derive some masochistic pleasure from an increase in the school-leavers swelling the queues at the DHSS?

P D WILLIAMS
Deputy Head
16 Mill Close
Sapote
Leics

Grassroots view

Sir - Stephen Austin's article on teacher assessment strikes me as a paradigm of the "grassroots" view of all educational change which takes as axiomatic that:

- clarity of vision in educational matters is the sole prerogative of the Scale 1 teacher;
- promotion automatically entails brain-death;
- "management" must, by definition, be insensitive and crass in its methods.

I hold no particular brief for the current preoccupation with teacher appraisal, but I find the glee with which the writer contemplates the "non-cooperation" which will attend any scheme deeply disturbing.

I suspect that Mr Austin is well aware of the dangers of labelling and stereotyping pupils. The same dangers lie in knee-jerk reactions to anyone who has dared to rise above the Basic Scale.

An educational garden consisting of nothing but grass would be pretty boring.

STUART BALLANTYNE
Bay House School
Gomer Lane
Alverstoke
Gosport

would have informed me had they changed their minds.

It is true that the HMI report referred to "a tradition of advisers working independently, which prevailed until recently..." and I am sure that Haringey is alone in attracting this critical comment. But no reports submitted as a response to the DES envisage a "shake-up" of advisers, though we have codified existing practices, many of which are long-standing, in ways that have been helpful to the authority as well, I hope, as to the DES.

TONY LENNEY
Child Education Officer
London Borough of Haringey



Democratic needs

Sir - Brian Cox is right to praise the work of the British Council (TES, April 18), but wrong in suggesting that "All countries where English is a primary language are functional democracies".

Democracies function effectively when those at the bottom of the pile can talk, in their own language, to those at the top. A later distribution of the resources, the establishment of human rights and a strong sense of cultural identity are prerequisites of a democracy best served by permitting and recognizing the part indigenous languages play in the attainment of such a state.

English has a role to play in the process (as it has too in the perpetuation of elitism), but as an equal and not superior partner.

Dr DAVID STEPHENS
Lecturer in Education
University of London
Institute of Education
20 Bedford Way
London WC1

Letters should be as brief as possible and typed on one side of the page only. The Editor reserves the right to amend or cut letters where necessary.

Poor tests

Sir - Surely your report of American tests, "Depressing state of students' writing" (TES, April 25) should have been headed "Depressing state of educational testing"?

If the subjects set are to be believed, nine-year-olds were asked to imagine what it would be like to be a goldfish, and to persuade an aunt (fictitious no less) to allow them to travel alone to visit her; why they should wish to do so we - and probably they - have no idea.

It appears to me that few children of this age would have any reason to wish such licence, the desire to prove independence being far more real to older pupils.

As for the life of a goldfish, what existentialist theory were the reser-

chers aiming to discover?

What the tests may have proved was the lack of conceptual development necessary to achieve such tasks - a charge levelled against Piaget among others. What they did prove however is a truism learned very early in a teacher's career: topics set must be relevant and interesting to the students and, more importantly, be such as to encourage the full development of the writer's potential.

Heaven help us if this is an example of the educational testing by which our students - and our own - efforts are to be judged.

B M PHIPPS
27 Puttocks Drive
Welham Green
Hatfield

Cover dilemma

Sir - The headline about local authorities paying back cash stopped in the "no cover" row (TES, April 25) exemplifies yet another reason why the morale of teachers is so low.

Many very conscientious teachers agonized whether or not to take part in "no cover" action and decided that, as pupils would be sent home or out onto the streets, they would not take such action. The i.e.a.s issued their threats about deductions from pay, and some actually carried them out.

Now those threats are seen as mere sabre-rattling and there is no retribution for taking action, and no fairness for those who did not join in. Loyalty

counts for nothing in the eyes of the i.e.a.s and the Government.

When the next wave of action begins in September, no one need wonder why more teachers take part. Not to do so is seen as no better than to join in, as threats by employers are not carried out. These latter should remember one of the cardinal rules followed by good teachers - never issue a threat you are not prepared to carry through!

To do one's job in the face of great difficulties gains no thanks at all from the employers - none has come from any i.e.a. I know of.

R HUMPHREY
21 Ashpole Road
Thames Ditton
Surrey

Nit picking?

Sir - The director of the medical entomology centre at the University of Cambridge (Letters, TES, April 4) writes that "There are very good health reasons for the eradication of head lice..." What are these very good health reasons?

I am a class teacher in a primary school in the i.e.a.s where routine official checks for head lice ceased some time ago, treatment shampoo is no longer provided from school and available leaflets are virtually incomprehensible to many of our parents.

Our school nurse was unable to help identify carriers during our most recent outbreak as "owing to the cuts" the "authorities" do not allow her the time for such laborious checking. She has, however, kindly arranged to lend us a video to show to interested parents.

Should I appoint myself official school nit-picker or give up?

ANGELA WADE
44 Lower Road
Barnes
London SW13

Head stop

Sir - Leicestershire education authority operates a policy which does not allow members of staff, including deputies and acting heads, to apply for the headship of the school in which they are teaching regardless of its size.

I would be interested to hear from teachers outside Leicestershire who work for authorities claiming to be Equal Opportunity Employers where a similar policy is implemented.

CLIVE WOLFE
Director
National Student Drama Festival
20 Lansdowne Road
London N10

I B DOBSON
11 Stanley Drive
Humberstone
Leicester

other. Teaching is as caring a profession as that of nursing; teachers of any worth care about the children in their charge, but unless - and until - teachers learn to care about one another and demonstrate that what Alec Clegg called "feeding the soul" is at the heart of the matter, there will be precious little to pass on to future generations.

There has to be a better way than the current one; forming a general teaching council could provide the beginning to that better way.

PATRICIA GILPIN
Chaucer Cottage
Haywards Village
Oxfordshire

Better way

Sir - The latest issue of the journal published by the National Association for Primary Education prints an editorial by its chairman, John Coe, on the subject of teachers preparing their own code of professional practice and moving toward the creation of a general teaching council.

Dame Mary Warnock has spoken of teachers improving their self-esteem and presenting a united front in a similar manner to that of doctors.

Currently, parents and teachers are being caught between two dedicated forces - that of the multi-voiced unions on the one hand, and the Government with its imperious commands, on the



Polytechnic of Wales students perform *The Last Gino* at last month's festival.

Drama value

Sir - I thoroughly enjoyed Tony Rowlands's account of the recent *Sunday Times* National Student Drama Festival (TES, April 18), but I must take issue with him over the place of schools in the event. The number of schools entering has been climbing steadily recently and their contribution has been considerable for some six years now, as has their share of the awards.

(Last year the two schools won the only two BP acting awards between them, as well as *The Sunday Times* Playwriting Award.) This year alone entered and again two were selected for Swansea.

However, I could not encourage schools to enter if I (like your reviewer) saw the festival as mainly "a springboard into the 'professional theatre'". Although over 400 past participants are now well established in theatre, television, radio and film, these represent (thankfully, in view of Equity unemployment figures) only a small proportion of the many thousands engaged in the event in 31 years.



Mary Warnock

Milton keen

Sir - Brian Goodey (Letters, TES, April 18) points out the value of urban studies centres located in shopping centres and says that "Milton Keynes featured such a facility".

It did, indeed, and suffered from extremely cramped quarters in a high-value location. Now, six kilometres out from the city centre and 20 metres from the M1 we have very much better

facilities. The new Milton Keynes Urban Studies Centre is a fine example of an excellent industrial unit; and we are in a very striking distance of the city centre. In the past year 5,000 students have studied central Milton Keynes starting from this centre.

Don't let Dr Goodey's past tense fool you - Milton Keynes Urban Studies Centre is more used, and more useful, than ever.

PAT MORTIMER
Centre Director
Milton Keynes Urban Studies Centre

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World class violinists develop before arriving at college

Virtues of virtuosi

Sir - In her article "No applause for going solo" (TES, April 18), Philippa Davidson quotes me as saying: "Who wants yet another virtuoso exponent of the Mendelssohn violin concerto?" and, out of context, that seems rather an odd remark for a principal of a music college to make.

In June, one of our students will be playing that very same concerto on two occasions with the Hallé Orchestra, and next month another student will be playing it with our orchestra in the Barbican Hall to help him prepare for an international violin competition.

As we have students (both British and foreign) entering major violin competitions in London, Moscow and Indianapolis this year, it is evident that, as a college, yes, we do want "yet another virtuoso..." But we do not want our status as a music college to be judged solely by our capacity to turn out world-class violinists.

No college anywhere in the world actually produces these rare performers; they are formed well before music college age. A study of the careers of the 16 or so world violinists who are truly of an international rank, or of the young players who are nowadays winning the major competitions, reveals a background of training hitherto to British ideas about the education of the young.

This may explain why we have not produced any British world-class violinists. It may also explain why the specialist schools, and why the allegation that our best performers have to go abroad to find an adequate training to prepare them for an international career is so patently specious. What ever happened to all those British violinists who needed to go abroad for their training to become world-class players? Where are they now?

As it happens, over the past five years hardly any students of college age have gone abroad for training. However, when our students are at an advanced level, we actively encourage them to go to Europe or the US in the same way that outstanding overseas performers come to this country to continue their training, as this experience of different musical cultures and traditions has always been a valuable part of a musician's education.

Our colleges have been condemned for their alleged mediocrity, and Mr Bernard Levin has even awarded some

of us his "lemon of the year". Criticisms have been made by bystanders on the touchline of the musical world who have little contact with music colleges, or by musicians whose knowledge of us is a memory of 30 or more years ago.

Perhaps we should have diverted our limited funds from what we offer our students to PR and promotional schemes to publicize our new courses - the extra performance teaching that many of our students get, our distinguished teachers, our competition successes, and the new professional realism that we are trying to bring to our curricula. It is a pity that our new generation of outstanding young singers, the new recruits to string quartets, contemporary and early music ensembles and chamber orchestras, are not advertised enough that there is a new life in our institutions.

None of us in the colleges is complacent; we could achieve more with fewer students and additional funding, but we would like to see Government-sponsored advantages applied fairly, and related to achievement as much as to aspiration.

The education of performing musicians cannot any longer be considered in isolation from the creation of new audiences. In embarking on a new communication skills project at the Guildhall School, we have discovered how profoundly the experience of working with new audiences - of discovering and inventing a new repertoire and of actively sharing artistic experiences with groups who become more-than-listeners - has challenged our best young players and led them to think anew about the musician's role in society.

We are going to need new audiences if our future young players are going to have anyone to play to, whether they be virtuosos or just plain excellent musical performers. This brings me back to the original question: "Who wants yet another..." It is a question that must be very much part of the education we offer our young musicians.

JOHN HOSIER
Principal
Guildhall School of Music and Drama
Barbican
London EC2

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THE FUTURE OF HISTORY?

Mr. J.G. Slater, Senior Staff Inspector, HMI, will speak on 'The Future of History in Primary and Secondary Schools: an HMI View', on 21st May at 2 p.m. in Southlands College (York) at Roehampton Institute, Wimbledon Parkside, London SW19 5NN. This conference is open to all interested in the study and teaching of history and there will be an opportunity for informal discussion with Mr. Slater.

Subject to contract

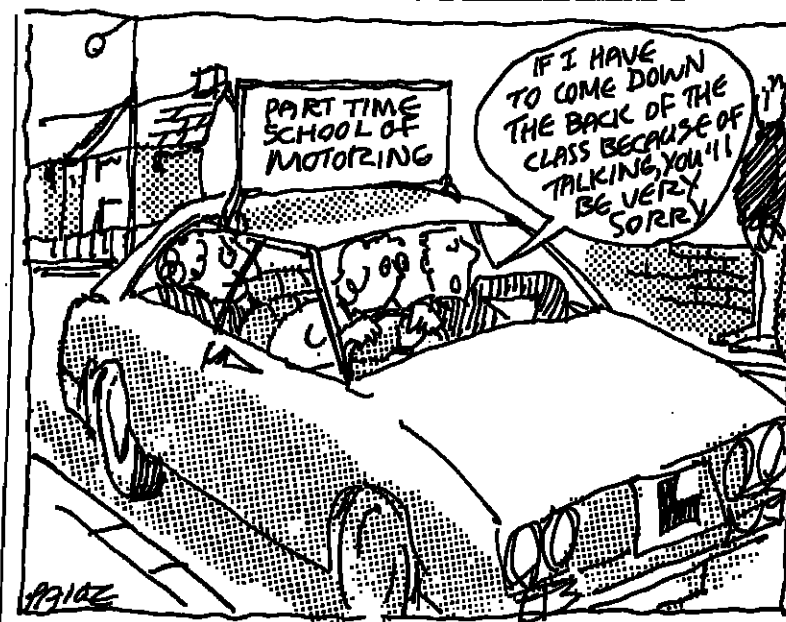
RICHARD WATSON

I was organizing the retirement "do" for our head at a large seaside Victorian hotel (now bankrupt and closed). A young PE teacher told me that she would be late; she arrived at 11.15 and it was only later that I learned that she had been too embarrassed to say that she was working as a barmaid to pay off car repair bills.

She need not have been worried. I earn extra income from school examination work. For 10 years I had a monthly payment from teaching general studies to engineering apprentices. The work ceased in 1982 because there are now very few industrial trainees left on Teesside. To make ends meet I have since taken up private tuition.

I know many others who have sidelines - tutoring, playing in folk groups, mending cars, running a driving school, selling life insurance, fishing and fish mongering, keeping bees and driving a bus at weekends. One friend has given up teaching to work as a tradesman - he is not only a graduate chemist but an expert motor mechanic - saying that he thought there would be more "hassle" in the future with "parental ombudsmen" and "local authority commissioners" monitoring progress.

The teaching dispute has reached stalemate. A lot of criticism has been directed at the teaching profession led from the top by Sir Keith Joseph; every parent can now be a self-appointed expert on teachers, schools and educa-



tion.

One day a teacher's contractual duties will be defined; the acrimonious exchanges have already begun. Meanwhile, in the world of market-place economics an unknown number of teachers have found other jobs. Entrants in key subjects like maths, physics and CDT are not available for hire. Those who have to stay in teaching and have found extra sources of income are unlikely to relinquish them once the dispute ends, for it seems unlikely that 1975 salary relativities will be restored. The profession is starved of enthusiastic new entrants.

Schools have always existed on an element of bluff. In the 1960s and 70s many believed that extra curricular activities benefited the school community as a whole. The past two years have shown that work goes on in class

without all the peripheral effort of organizing sports, plays and fund raising activities.

Defined duties - attendance at parental evenings, staff meetings and the like - may satisfy whatever is meant by public opinion. However, conditions of service will ensure that the minimum stipulated duties will become the maximum. Removing the public service element and replacing it with an arid contract is unlikely to bring about a surging rise in standards.

What a contract is more likely to achieve is to make teachers defensive, to limit their activities in school and to find job-satisfaction in extra, remunerated work.

Richard Watson, is head of English at The Rosecroft School, Loftus, Cleveland.

Violation of rights

JOSEPH O'CONNOR

I have an uncomfortable feeling that there is a growing trend to use the statementing procedure in ways that the 1981 Act never intended, and that invoking special educational needs has become a way to cope with schoolchildren who are simply difficult to teach. The feature by Kathleen Cox (TES, April 18), trying to justify a formal statement for pregnant schoolgirls, is an example.

Girls who become pregnant while still at school will need, first and foremost, much help, counsel, and support of a very practical kind. A statement will not provide this - it is only meant to decide special educational provision.

Apart from the obvious example of games, it is very difficult to think of any other part of the curriculum where pregnancy is going to prove a handicap. A statement is not issued for a girl with a broken leg, and this way of thinking makes pregnancy into some sort of illness or disability.

It is difficult to justify a significant learning difficulty which is "severe and complex" and "requires the provision of extra resources in ordinary schools", which is what the Act lays down.

Objective counselling is very important, so the girl concerned can take a fully informed decision. Statementing is more likely to lead to her being overwhelmed with advice by well-intentioned teachers and doctors in the very way which Kathleen Cox would

like to avoid. Statementing goes against the principle of choice. An official is chosen, not the girl concerned. What is more, once the procedure has run its course, it is difficult and complicated to appeal against, and very difficult to get it revoked. This sort of stress is the last thing a girl and her family would want for.

Nowhere in the article can I see any reference to a choice or request by the girl or her parents. If the proposal is the statement to be done as a matter of course, regardless of their wishes, then I think this would be a gross violation of rights.

The statement is described as a protection, but a protection from whom? The implication is that it is protection from the parents, who are presumably trying to prevent the girl continuing education, and this is a very unfair overall accusation.

The existing provisions are quite sufficient to cope with girls who become pregnant while at school. Learning difficulties might be stretched to include almost anybody, and a statement can be used too easily as a formal control and coercion, rather than a helpful voluntary procedure. Already one i.e.s. is trying to statement children in a blatant attempt to force 1981 Act to control learning. In no way can the law be stretched to justify this.

The 1981 Act should be used in the way it was intended: to integrate children with special educational needs into ordinary schools, and to provide a framework for parents to request an assessment of educational provision in exceptional circumstances, where there is a severe learning difficulty and they are dissatisfied with the existing situation.

Joseph O'Connor is a music teacher in the London Borough of Croydon.

Dishonest industry

JAMES LYTLE

1986 has been designated as Industry Year against the background of controversial education/industry debate. Critics blame education for skill shortages and accuse it of perpetuating an outmoded curriculum and for being unresponsive to Britain's "toolroom" needs. But industry should accept its share of the blame.

For the past 10 years, industry has shed a massive amount of so-called "surplus labour", something it is still in the process of doing. It has justified this "flaking" process in terms of it being uneconomic to retain certain types of labour when it can utilize more efficient production processes. Given this rationalization, it is easy to see why pupils do not want to enter industry.

By focusing exclusively upon economic objectives industrialists have done themselves a disservice, particularly by ignoring the moral impact of economic decisions on young people and their families.

Industrialists have failed to come to terms with this moral dimension just as they have failed to get to grips with some of their own outmoded machinery and working conditions, and in addition have shown a reluctance to invest in training - a point the MSC is especially concerned about.

It is dishonest to blame pupils and teachers for not wanting to go into industry and to waffle on about opportunities in industry without at least attempting to justify and to explain to young people the damage that industry has done to some local communities as well as the unrepresentative number of redundancies within this major employment area.

Contrast all this with a country such as Japan, where the employees see themselves as having an obligation to the workers as well as to the local community.

The slant missing from initiatives such as Industry Year is where industrialists make a determined attempt to explain to pupils and parents the reasons behind the tough economic decisions and how Britain got into its current economic difficulties.

In addition, an attempt should be made to reassure parents and pupils in particular that there is a future within British industry. In a world of sweatshops and robots, young people will want to opt for those job areas that they feel are secure. This cannot be achieved by well-worn platitudes because such language is transparent to today's younger generation.

Honestly, with heart-searching on both sides of the educational bog, the only hope in these difficult times is that the industrialists appear to have little to offer pupils and initiatives such as Industry Year will be ineffective until the moral dimension is freely and openly discussed with the parents and more importantly with the pupils.

James Lytle is a careers officer with Birmingham careers service.

Visited upon us

ISOBEL VALE

Visiting teachers are the bane of many a school. A Jewish lady appeared at our school, talking to four Year 9 girls. The visitor can bring expertise in specialized areas. Although an RE teacher may feel competent and enthusiastic, a visitor can add the validity of an inside view. This could be the only occasion a pupil might have of encountering a real believer. "It we had learned from a book we would only know facts, not feelings and opinions. It seemed more real being talked to by a Jewish lady," as one pupil put it. In bringing first-hand knowledge, an adherent of a faith can correct any misconceptions which may exist (and there will be many). "I expected her to

have long hair and long robes," was an idea expressed by several pupils. It was therefore helpful that "she cleared blocks on many aspects of the religion and brought it down to earth".

Some youngsters said their attitudes towards Judaism had changed. "It is a complete religion with more to it than I realized." How important it is that we allow faith communities to speak for themselves. It is a pity that many may not be truly representative of the religious group and that needs to be stated.

Not all those visiting RE have been trained for the task and even if they have, we cannot expect RE teachers to know everything about world religions, new cults and endless denominations. There is a real danger of misrepresenting any faith or belief and it is here that the visitor can act as a kind of INSET agent in school, with pupils and teachers learning together.

"The teacher doesn't know everything and the visitor taught us lots of things which our teacher couldn't because she is not that religion," as one pupil observed. "We can believe a Jew but when a



teacher tells us about it, or we read it from books we don't know whether to believe it," said another.

Much has been written about the difficulty of RE teachers remaining neutral, particularly when they are committed to one viewpoint. It is, therefore, all the more desirable for pupils to be exposed to a variety of views, commitments and non-commitments and the visitor can play a part in a fair and open approach to RE teaching, provided the RE teacher selects a wide range of visitors throughout the year.

The pupil who said, "I don't particularly like RE lessons but this was an exception," demonstrated how an outside speaker can stimulate interest in, bring variety to and boost the status of, RE. At the same time comments like, "the lesson could not have been improved in any way, it was just perfect," show that the extensive preparation had paid off and provided real encouragement, to visitors who enter schools on a regular basis, without expecting any payment.

On this occasion, the speaker had been used as an integral part of a project on Judaism. "It was nice to actually see someone who was the religion we have been learning about and we could take a lot of notes and it would help us with our work."

Maintaining links with local faiths can also foster mutual understanding between a school and its community and on a more mundane level, the visitor is a welcome change. A complete stranger can encourage pupils to ask questions which they would not normally ask of their teacher.

Visitors, then, can be a valuable resource but there are pitfalls which any teacher can think through and avoid. The practice of welcoming visitors into school needs time and thoughtful planning but when it works well, the whole experience can be so rewarding for visitors, pupils and teachers.

Isobel Vale is head of RE at Peter School, Oxford.

Examiner heal thyself

Pupils' chances are too often blighted by errors in exam papers, says Iain Morley

Any day now we shall be hearing the first cries of dismay from teachers up and down the country who have just discovered that they have inadvertently been teaching the wrong syllabus. And which of us has not murmured sympathetically, "There but for the grace of God..."? For this kind of error, so inexplicable and unforgivable to outsiders, is all too easily made, the welter of ever-changing examination regulations being what it is.

Although I always check, double-check and re-double-check the syllabus I'm teaching, I nevertheless admit to breathing a sigh of relief as soon as I've opened the actual examination paper and found that I have indeed been teaching a syllabus that is correct in every last detail, including all the examining boards' second thoughts. I can only guess the feelings of horror and remorse which must assail those teachers who find that they themselves have not in fact been doing so.

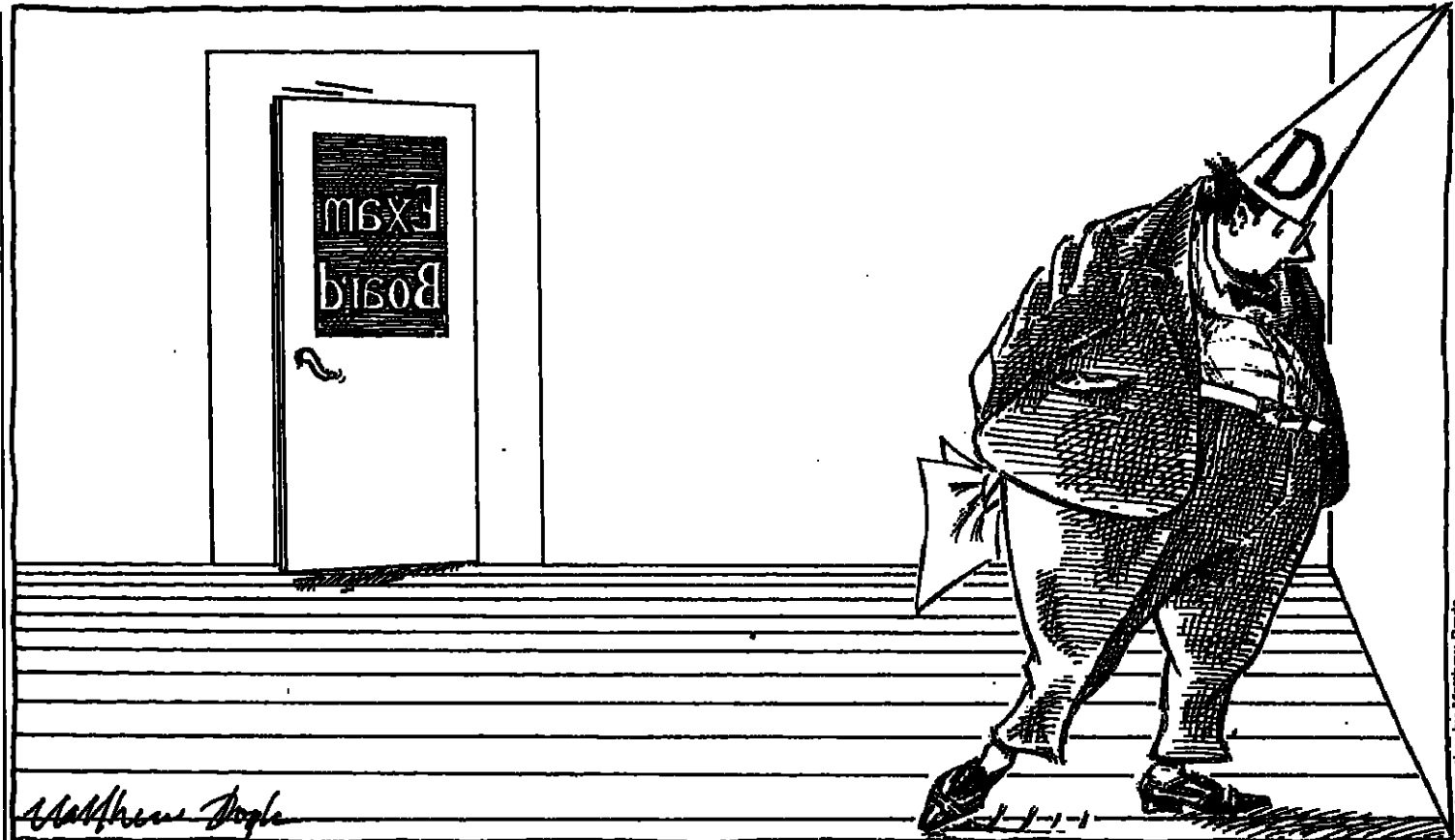
The attitude of the examining boards to these calamities is predictably Olympian. For the good of the pupils, they make certain concessions. For example, they can provide questions - from what I gather is sometimes termed the "Cock-up Department" - on incorrectly studied texts. But they always make very clear by their comments to the press and others that they do so with great reluctance and that they do not in any way sympathize with or even understand the reason for the initial error, which they regard as inexcusable - as, in truth, it is.

However, the boards, who work under considerably less pressure and with much more time for measured consideration than do teachers, are not immune from error themselves.

In my own subject, English, candidates have for years been plagued by errors in GCE and, to a lesser extent, CSE. In general the errors have not been disastrous, but they have been enough to diminish the confidence of candidates and, cumulatively, to erode any authority the examining bodies may have to adopt a high-handed manner with teachers who have likewise erred.

In the University of London A level English examination of January 1982, a paper was set which omitted to state how many questions should be answered. The confusion this could have caused can be imagined. In a previous year, there was a question about a non-existent character in a Conrad novel ("Verlock"). Would marks have been doctored for this howler had a candidate made it?

These blunders, though disturbing, pale by comparison with the O level English Language Multiple Choice paper last summer, which mistakenly reproduced a passage and questions



which had already been set in a recent previous examination. This catastrophe caused massive work to my school, and doubtless other schools, in coping with questions from agitated and furious parents. Some pupils had, in looking at past papers earlier in the course, seen the passage before.

Parents feared that their offspring may have been lulled into a false sense of security by recognizing it as work they had already looked at (though they had not been through it with a teacher, and therefore they would in reality have been at little advantage, if any). What is certain is that the candidates were thrown into some confusion by the unforeseen and, to them, bewildering event. The remaining pupils, the majority, who had not seen the passage before, were in a state of desolation afterwards when their friends asked them if they had recognized it; they understandably felt that chance (or faulty teacher precedence) had disadvantaged them. Equally understandably, their parents shared their sense of unfairness.

The board in fact went to a great deal of trouble to ensure that fairness prevailed, and I have little doubt that pupils were not ultimately disadvantaged, but the point I am making is that examining bodies are not without fault themselves. Indeed, in the production of syllabuses, London University is sometimes all too prone to fault itself. Mis-spellings ("Grahame Greene" appeared for years; so more recently, did "Arbutnot") and their own Errata and Addenda slips - the proliferation of which has been remarkable - have had to pick up such oddities as the O level Literature syllabus which wrongly demanded the study of four instead of two plays (How many teachers bought new sets of plays as a result of this?) or the stipulation for study of out-of-print and unobtainable texts.

CSE papers have been more reliable, though in an English paper errors of spelling ("reman" for "remain", 1983) are, to say the least, undesirable. However, last summer candidates were greeted with a paper in which all the questions were allocated marks, and a separate grand total of 50-

but the marks added up to 44. Again, it is impossible to guess how unsettling this may have been to candidates who had begun answering the question allocating their time on one basis only to find that they should have been allocating it on a different basis.

Clearly the examining boards are not alone in this. I have little confidence that major errors will be avoided in the future. Should such errors occur, teachers may understand and sympathize; but they will do so in the knowledge that, on past form, their understanding and willing co-operation in rectifying matters will not be reciprocated by the examining board should the positions be reversed.

Iain Morley is head of English at Claremont High School, Brent.

To buy or not to buy?

David Roberts considers the flight into private schooling.

Question: What can you buy that you can't see and you can't feel, and it's going to set you back £90,000?

Answer: a private education for two children.

Ninety thousand pounds. Telephone numbers really, isn't it? And who in their right minds would do it?

The people who quoted the figures at me, friends who are just contemplating this massive expenditure, have even toyed with the idea of leaving their children to the mercies of the state education system, and giving them a golden handshake at 18, instead.

"Think what you could do with that," says he, something of a frustrated entrepreneur himself, convinced that a large dose of cash at the right time would have changed his life. "Imagine, newly qualified and with £45,000 in your pocket."

Left to the state system, newly qualified as what? murmurs his wife, a trifle sourly.

These friends of mine are in the fortunate position of having inherited money. It gave them

a comfortable nest egg with which to play the stock market, which was fun but not necessary to life and limb and the family's weekly finances. It will go a long way towards educating the children, and they both believe that the grandparent who bequeathed the money would be delighted to see it used in this way.

They also have relatives who are so keen on private education that if the going ever gets tough, they are likely to help out, possibly with covenants.

And they have neighbours who pour a constant syrup of complaint about the state system into their anxious ears.

"Oh no dear, I wouldn't risk my children with that ruff raff. They only get once chance after all, you have to do the best you can for them."

And so my friends are embarked; the children have been provisionally enlisted at fee-paying schools; the eldest has lost her Saturdays to coaching sessions for the entrance exam, and they are about to enjoy what may be their last foreign holiday for 10 years.

Mind you, private preferences and pressures

apart, the bleating and whingeing from the state sector in the last year would be enough to send any self-respecting parent running for the cover of the private education system.

Private schools sailed serenely through the muddy waters of action, staff having been kept happy with an interim payment right at the start, topped up with whatever their brothers and sisters in the state system could win for them. School plays and concerts went on, sports fixtures were duly reported in the press. Life in the private sector was visibly proceeding as normal, while chaos ruled in the state schools.

First it was money, next the new exams. You can't open a newspaper but there's someone belly-aching that it can't be done, and we haven't had time, and please, God, will you leave the execution till next year? What shreds of respect the profession may have had in public eyes are fast disappearing.

Meanwhile, as my friends with the ninety thousand to spend were quick to tell me, the private schools are straining at the leash just waiting for September, when it's going to be all systems go and everything is ready and there will be no problems and "we know what we're doing, really we do."

Now, you and I recognize a sales pitch when we see one. Like me, you may have attended a first INSET course for GCSE and been quietly pleased that for once our wealthier colleagues were in exactly the same state of readiness (or not) as the rest of us. If approved syllabi have not reached us, they have not reached them either.

In fact, the likelihood is that any teacher in the state sector, who has been coping for years with the joys of GCSE course work and moderated folders and orals - "Heavens, you don't encourage them to talk, do you?" - will find GCSE work a damn sight easier than will teachers in the

protected private ranks. There, one gathers, there are no CSE goats, only GCE sheep, and they are the classes where things are about to change most. Declaring absolute readiness for GCSE at this stage does not convince another teacher, but it works like a charm on your average parent.

The problem is, of course, that many a teacher is also a parent. And how many of you, reading this now, work in the state system, and send your own children to fee-paying schools?

I glance around my staffroom, and there are six women immediately visible who are, by their own admission, back at work primarily to afford the fees for their own children to go elsewhere. Why?

There are simply enough answers; for smaller classes and greater individual attention; for teachers with honours degrees in their subjects who still wear gowns and command silence and respect the moment they walk through a door; for Latin (Gleyns Kinnoch's son may have been able to do it a year early at his comprehensive school, but it's long gone from mine); for attractive premises with splendid sports facilities; for a better start in the rat race than Mum and Dad ever had; for friends they may keep all their lives; for a general tendency towards academic excellence rather than towards practical skills, because more of the pupils are bright; for the less nebulous fact that although such schools educate only 6 per cent of our children, they provide 50 per cent of the undergraduate at Oxbridge, and how the hell can that be the case unless they are, simply, what they say they are - better?

So that's what we're after when we begin a purchase possibly more costly even than the home we live in. And if we state-school teachers vote with our children's feet and the whole of our salaries for fee-paying schools, it's surprising anyone sends their children to us at all.

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Primary

Designing and making – is it a new name for an old game, the latest fad to hit primary schools or the coordinating theme they have been waiting for? Sarah Farley talks to some of those who would like to see design related activities in every infant and junior school (left) and looks at some efforts to introduce it in practice.

The name of the game is all important. "You mustn't call it CDT. Its design-related activities." Rather a mouthful, especially for the young children on the receiving end. But the approach to teaching that is slowly penetrating primary schools may be called design awareness, problem-solving, capability, designing and making, science or craft; some even call it plain "design".

The reason it must not be called CDT (or science, or art), according to the Design Council, which has convened a primary education working party, is that such terminology could result in design becoming subject-bound, a tendency that has been detrimental in secondary schools. It should not even be called "design" because that too would run the risk of pigeon-holing and the various activities involved in designing and making are most effective when taught across the whole curriculum.

With a growing number of groups all claiming an interest in injecting some sort of creative problem-solving/scientific element into primary education, there is a bewildering array of options to teachers. And the distinctions between such groups are very fine to the uninitiated.

It all depends what you mean by "design". In some schools, it is regarded as the construction of something, all the children making pop-up cards under the direction of the teacher and using materials chosen by the teacher. Others see it as having its roots in science, developing working models of boats using experimentation based on scientific principles. Sometimes it is the name given to the planning, construction and modification of a specific project.

Schools also vary enormously in the time devoted to it. Perhaps two sessions a week, or a whole week, or a term will be set aside. It may be in the juniors or in the reception class, or throughout the school.

This diversity may cause confusion to some in the design education world, but for others, design is seen as a cohesive factor that can enrich all other aspects of learning: an integral part of all subjects maths, art, English, science and humanities.

David Jinks is currently a project leader for a British School of primary schools, and a member of the Design Council's working party. His experience covers the unusual combination of working in a secondary school, moving to a college of education, and then starting again as a teacher in a middle school.

"Children now at school need to be educated for the life they will be living in the 21st century. They will require experience in problem-solving and they will have to be flexible, ready for changes of direction in whatever work they do," he maintains.

Design provides the foundation for this sort of education. It requires an ability to organize one's thoughts, to communicate, to be creative and to apply practical skills. There is no absolutely right answer to a design problem – any one of several solutions might be equally valid – and this makes it one of the most intellectually demanding activities a child can experience. It's not only for those who will become designers, its value is for every one.



Primary schools were excellent places to begin design training because young children had no inhibitions about discovery through experimentation.

"I was overwhelmed by the imagination the children possessed and by their creative ability. They come up with such superb answers to real life problems," he said. "Children of this age are much better equipped to understand and apply the principles of design than many people realize."

David Jinks would like to see design become a part of primary education in more schools as the link for the different components of topic work. It lends itself particularly to teaching that encourages children to be responsible for their own learning.

But he is wary of asking too much of teachers. "Without experience, it is difficult to know which aspects lend themselves to problem-solving. Teachers need help to develop confidence and we mustn't go too far too fast. Many teachers are nervous of handling tools themselves, never mind being in charge of a class of 25 eight-year-olds armed with hammers."

David Jinks believes that confidence is most likely to be achieved if things are kept simple so teachers and children can concentrate on the ideas behind structures rather than the complexities of handling tools and materials.

Some teachers are uneasy about the practicalities of working in mixed-ability group without having constantly to wade in to rescue children who have gone adrift, thus creating an atmosphere more of discouragement than success. But those already involved in such work maintain that far from having a debilitating effect, design-related activities can provide the opportunity for children to demonstrate abilities that science, or operation on a hair for colour and shape.

Teachers who are enthusiasts for design-related activities often give examples of how "cack-handed" children who seem never to savour success can discreetly be guided towards using materials and tools within their range, until gradually they achieve their goal.

In group work they might emerge as good organizers, or be interested in research, or learn a new practical skill. Their estimation of themselves in their own and their peers' eyes can rise and they can go on to develop skills and imagination that they never suspected they possessed. Children used to coming top in written tests find that they can use their intellectual prowess in other ways.

Teachers new to the joys of design-related activities will take some convincing that it really works and that the apparent chaos reigning in Class 4 is actually "an intellectually demanding exercise". It is difficult to explain without a practical demonstration and the advantages take time to emerge.

For this reason, design-related activities often function best when incorporated in the teaching plans for the whole school, with the blessing of the headteacher. Teachers then know what experience children have had and can build on it, and avoid repetition.

Some methods of assessing a child's progress have been developed. In an attempt to make detailed notes by non-intrusive means, some teachers use tape-recorders, others use shorthand, to produce a record of what work is undertaken in terms of contribution to planning and reasoning. And then, of course there are the working models of roundabouts, flying objects, vehicles, and baby mobiles, to show parents and visitors, though it is sometimes difficult to convince people that it is the children's work and ideas they are seeing.

There are those who agree that design-related activities can introduce a refreshing stimulant into the primary curriculum, but will question the extent to which it should be incorporated as well as its feasibility.

"Teachers are overwhelmed by the seemingly infinite demands made on the primary curriculum," said Rodney King, primary adviser in Berkshire. "They ask 'What goes if you put CDT in?' But generally they are enthusiastic once they see CDT as part of the whole problem-solving element of learning."

"I suggest that when organizing the year's work, they plan six phases of project work, two per term, so that one phase has a science emphasis, another a geography emphasis, another aesthetics, another CDT, and so on. But although they have a different emphasis, each phase will use a problem-solving approach and will include work from the other subject areas. That way, they should achieve a balanced curriculum."

The forthcoming Design Council consultative document could provide the opportunity for sorting through the doubts and confusions. Certainly there needs to be a thoughtful consideration of how to develop design-related activities if the David Jinks's of the design world aren't going to groan with disappointment at discovering on the timetable "Friday pm – DRA."

Models that work

Support teachers in Nottinghamshire put rigour into designing and problem solving.

The impetus for some sort of training in Craft Design and Technology for Nottinghamshire primary teachers came from the teachers themselves. John Culpin, general inspector for CDT in Nottinghamshire, "There has been a good deal of activity in the subject at secondary level and primary teachers saw that it was also applicable to their schools. What we needed to do was establish a way of developing the 'designing and making' work that was already in existence."

Nottinghamshire's school-centred Curriculum Development Support Service (CDSS) launched a primary CDT project, with two secondary teachers, Rob Bowen and Peter Cole, to help staff in 18 selected primary schools.

The aim was to "extend and enrich the range of designing and making activities in the primary school curriculum," but as Rob Bowen and Peter Cole began visiting their allotted schools, they soon realised how much they were going to have

to alter their notions of primary education and the capabilities of young children.

"We had been teaching CDT in secondary schools but we didn't want to go marching into primary schools and say 'This is how you do it, chaps!'" said Rob Bowen. "We were aware that primary education was a very different setting but we were still not prepared for the experience of feeling like foreigners. We felt as though we didn't even speak the same language."

But once communication had been established, the similarities with secondary school CDT began to emerge. It was all a question of recognising it in its primary manifestation. One of the schools taking part in the project was Hemphill Hall Primary, Nottingham (photographed).

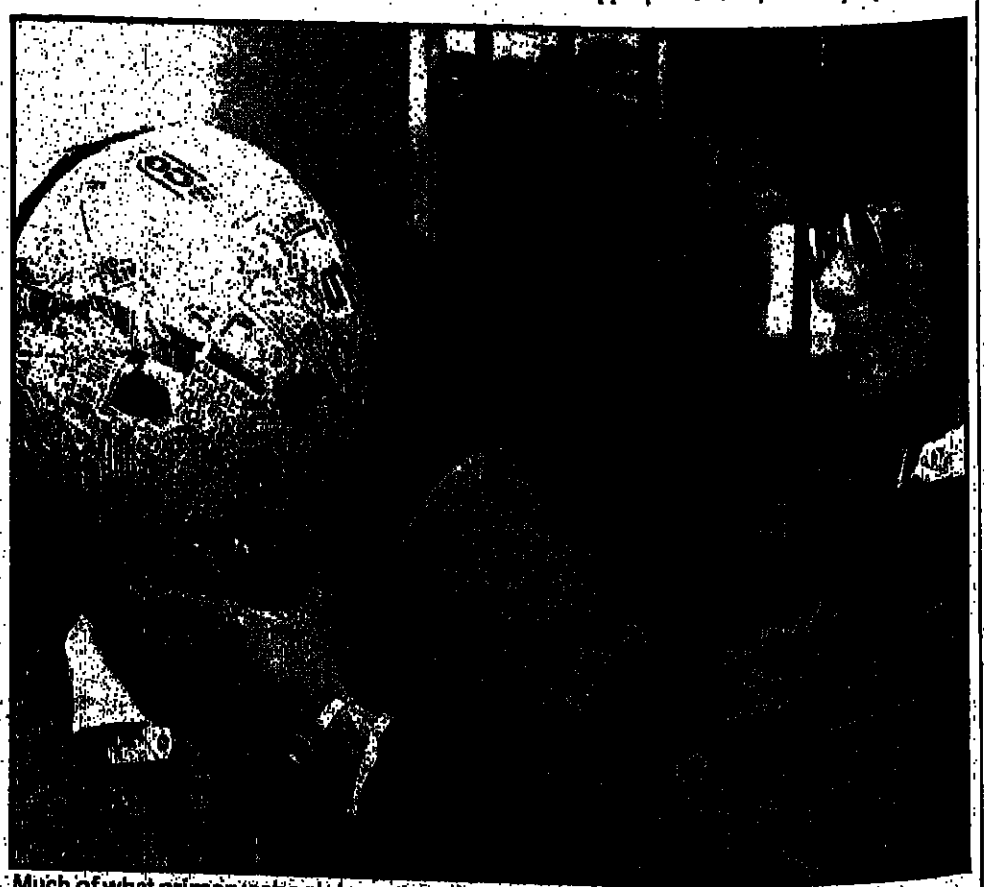
"I used to teach something I called 'practical science work'," recalls deputy head Stuart Harrison. "We had been experimenting with such things as model cameras and devising a harmless trap for mice. A visiting Inspector said 'Love this CDT work you're doing,' and I looked at him in blank astonishment. I thought CDT was something that only happened in secondary schools."

Hemphill Hall School, a modern open plan school with 300 children, has thoroughly embraced the techniques and ideology of designing and making. All the teachers in the school build an element of CDT into their topic work. How great a degree of a topic revolves around designing and making, or whether that element has a craft, electronics, art or science emphasis, depends on the subject matter and the individual skills of the teacher.

"The CDSS project introduced rigour into our CDT work," Stuart Harrison said. "We now design our models so that they work, whether it is swings and roundabouts designed by 5 to 7-year-olds for a parks topic, or sophisticated electronics projects created by the juniors. The teachers who were initially nervous or sceptical about designing and making saw how well it was working in other classes and started applying it in their own work."

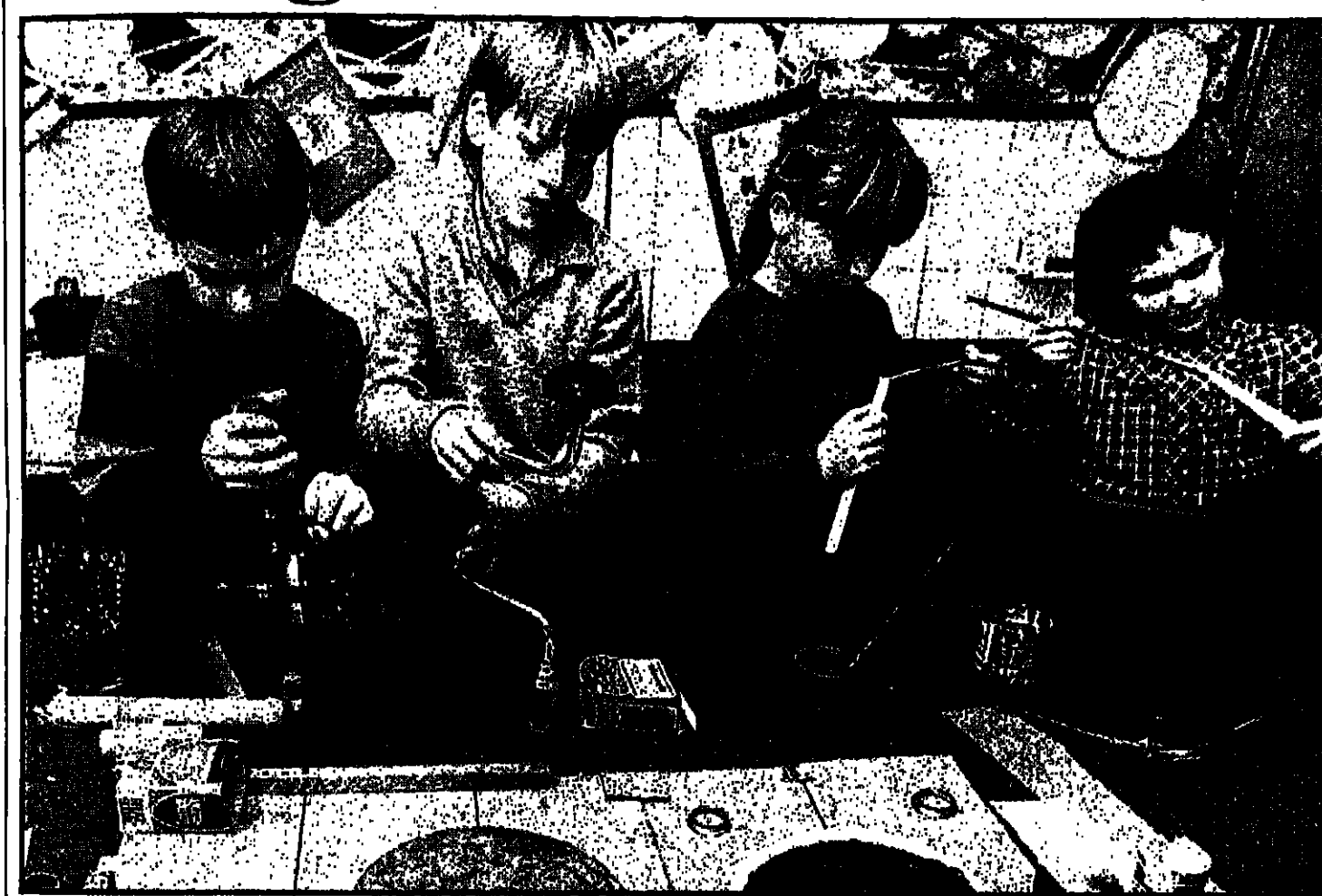
"Often we found that teachers were uncertain about which materials or tools to use," said Rob Bowen. "There is a tradition of having a 'scrap' box of bits and pieces, and of borrowing the caretaker's hammer and tacks. That approach denigrates what designing and making is about – what is needed are appropriate tools and materials. Sometimes that can mean egg boxes and off-cuts but teachers should know what other resources, such as Lego or Perspex, are available and not be afraid to use them."

To give schools a good start in building up a bank of appropriate tools, the two project leaders



Much of what primary schools have done for years involves design.

design



Teamwork: but many teachers are wary of arming classes of 25 or 30 with such tools.

put together a kit for each school generously furnished with drills, screwdrivers, Bradwells, pliers – even an electric soldering iron and a glue gun. The kit was an experiment and with hindsight contained too much so that it tended to be regarded either as a threat or a bribe. But it got the idea over to the schools, many of which have adapted the kit to their own needs.

Rob Bowen and Peter Cole, and the teachers they were helping, were consistently surprised and rewarded by the reaction of the children to the challenges provided by designing and making. "One group of top juniors at Hemphill Hall, working on a topic on Food, wanted to measure the quantity of additives in some foods," said Peter Cole. "Their balances were not sensitive enough for such small amounts so the children, designed and made their own. The need for improved methods of weighing, and the ideas of how to solve the problem, came from the children's growing understanding, not from the teacher."

The "link" teacher from Hemphill Hall School was Mike Browne who teaches the top juniors. He was already keen on the designing and making method of teaching and, as a result of his own interests, was familiar with tools and materials. But he was aware of the problems designing and making can bring.

"It is a very teacher-intensive style of education. Showing children how to use tools means that the staff have to give a lot of individual attention," he said. "There is also a danger that so much time is spent learning to handle tools that an important aspect of the work, the intellectual processes needed for the designing and making of working models, can be forgotten and much of the value of the exercise lost."

The project finished at the end of last year, the idea being that those teachers who had been part of the project would spread the word, not just in their own schools, but in the county. The service regards the project as a success: in three-quarters of the schools all the teachers are now using designing and making methods, and in the remaining schools it is used by at least half of the staff. Only in one school does it hardly feature at all, mainly due to a change of staff.

John Culpin is delighted at the way the project has given practical help to teachers and is proud that Nottinghamshire is leading the way in CDT at primary level. "I was visiting a school with an HMI," he recalls. "He couldn't believe what he was seeing: the abilities and understanding of 8-year-olds amazed him. He said, 'If this is what's happening in primary schools, then the teaching of CDT in secondary schools must be turned on its head.'"

The teachers may be surprised; the HMIs and advisers may be amazed; the children take it all in their stride.

Give it time

One Leeds school has become something of a showcase in spite of a lack of equipment.

The children taught by Margery Newlove at Allerton Bywater junior school, near Leeds, are so keen on design that they spend playtime industriously developing their projects. Michelle, for example, was absorbed in designing and constructing an extension for her fairy palace: a dining room complete with cupboards and tables.

As the rest of the design team filtered in from the playground, one found a piece of polystyrene that reminded her of a luxurious bath. She carefully attached shiny wire taps, glued some square-patterned paper to the sides for tiles. The finishing touch, which made it look for all the world like a *House and Garden* exhibit, was the piece of cloth (an imaginary flannel) in a conveniently shaped niche.

"Look Mrs Newlove, I've designed a bath!" she said proudly.

"I want children to become aware of design in the world around them," Margery Newlove says. "To look at things critically, asking themselves if they like them or not, and to give reasons for their answers. I encourage them to think how products can be improved. We have group discussions, everyone contributing their views and suggestions about the design of something familiar such as the bag they bring to school."

The discussions are tape-recorded so that children can later hear how they decided what design features make a good bag. Margery leads the conversation, showing the children that they already know a good deal about design from their own experience. They learn that design has as much to do with fastenings that don't jam and materials that don't shrink as it has to do with attractive colouring and motifs.

"I try to create situations in which the children are free to develop their own ideas. I want them to learn that they are capable of finding solutions to problems and to realize that they have the ability to change things," she says. "Once their confidence grows, they discover how exciting design can be and how they can apply it to so many aspects of their life."

When it comes to the construction stage of a

design project, Margery Newlove's ability to fire her pupils with enthusiasm and determination is her greatest asset. She is working against the odds; in other schools where design is taught, there are soldering irons, saws, a kiln, Fisher Technic kits and a quantity of different materials – but at Allerton Bywater even the pipe cleaners are rationed.

The caretaker kindly provides a supply of boxes and polystyrene shapes, and Margery Newlove brings in some of her own tools. But mostly the children manage without, producing amazing constructions that live in their imaginations as the "Forgotten Island" or the "Air Base". The children choose which project they want to work on and what their contribution will be. Some

incline toward research, others to writing stories connected with a project, others to getting their hands dirty.

Although Margery Newlove would welcome the addition of basic tools and materials, she can see advantages in not having too much technology readily available. One boy designed and made a propeller to power a boat, and what is more, with a little modification, it worked. Margery is concerned not to lose that inventiveness. On the other hand, it is frustrating to have to keep building propellers when you could be moving on to new areas of invention.

Her mentor is Ken Baynes, who organizes the Design Dimension Project for primary and secondary schools. Becoming increasingly convinced of the value of design for primary schools, she adapted Ken Baynes' art and the built environment project for use with her class of first year juniors and from there went on to develop topic work along design awareness lines.

This led to the children's work being included in several exhibitions. Barry Gibb, head of Allerton Bywater, fully supported Margery and devised a means of extending it. Margery has ceased to be a class teacher and instead divides her time between being primary needs coordinator and teaching design awareness.

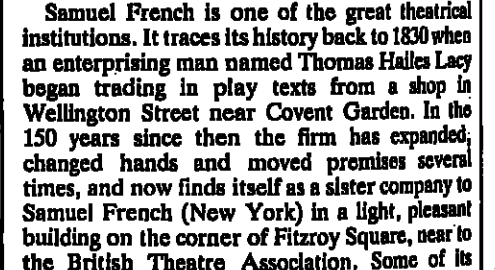
In theory, a group of eight to ten children are withdrawn on a rota from each of the five classes. For four weeks the group joins Margery Newlove for a half day once a week. In practice, the children who were in Margery's class in 1983 and were the originators of much of the work, have had more than their fair share of design time in order to prepare work for exhibitions.

Although this has meant that fewer of the children from other classes have experienced design, it has also shown that the inclusion of design has been beneficial for those children who have received more than their quota. "We can see the children are beginning to understand how to solve problems," says Barry Gibb. "We also see that they are beginning to understand the group which had been most regularly with Margery showed a greater competence with mathematics although it is not possible to attribute that solely to the design element."

But Barry Gibb and his staff are sufficiently convinced of the beneficial affects of Margery Newlove's work to bring design awareness to other parts of the curriculum. A cautious approach is favoured: "It's not a matter of overnight conversion," says Barry Gibb. "You've got to go slowly both for the sake of the children and the teachers. You've got to give it time."



Even at this age children come up with remarkable solutions to practical problems.



Nicholas Shrimpton on two ambitious attempts

English drama was, she argues, unique in Renaissance Europe in its refusal to separate its

There are some begged theoretical questions here, of course, as that tentative phrase "threatens to put into question" coyly allows - if Shakespeare's language really broke the rules of grammar and semantics it would be incomprehensible; and his stretching of those rules could hardly be seen as a celebration of the freedom from which the settled social order permits rather than

On the whole Eagleton's book is strongest where it relies least on Marxist dogma (the text is thick with such old warhorses as the labour theory of value, the anarchy of the market, and the historical role of the proletariat) and most on structural linguistics. There is an illuminating account of *Sing Sparrow*, and an excellent chapter on *The Merchant of Venice*, *Measure for Measure*, *The Taming of the Shrew*, and *Twelfth Night*. Eagleton's treatment of *Hamlet* and *Coriolanus* fails, by analysing the nature of language in classical terms, to alert us to the problem-poetics of these 'problem' plays. Eagleton avoids gender divisions, of 'fleshy' men and 'virginal' women, and of 'heterosexual' and 'homosexual' desire. He is at his best in his discussion of the 'deviant' category of the Problem Plays and, usefully, adding *The Merchant* to their number. This is an uneven book, with an old-fashioned Cambridge willingness to build large interpretations from small points of verbal detail and every slight sense of theatre. It is also lively, inventive and necessary.

and many plays you can't put on at all if the amateur rights are not yet released. "Usually what happens with a play is that it is done first in the West End, then there may be a tour, and then a period when the provincial reps do it. Only then is it released for amateur production, when its professional life is considered to have been fully exploited." So a recent West End success like *The White Horse Inn*'s *Pack of Lies* won't be available until next spring. Peter Shaffer's *Athenian* was released until a couple of months ago.

"Every so often a rumour goes around that *The White Horse Inn* is about to close and then the performing rights are going to be released. But I'm convinced that I shall never see its day. It has proved to be extremely successful; up at French's is extended touring and make-up now! It has records of sound-effects. But the main pillar of the institution always was and continues to be the great Samuel French Acting Edition," a publication with a strong house style which traditionally

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BOOKS

Public enemy number one

Robin McKie on the latest books about AIDS

Panics can have their uses. They focus attention on threats to public well-being and in the process can generate quick responses to danger. But predictably, panics also mislead and can create diversions from more sinister problems.

The story of AIDS, the notorious immune disease which has spread so alarmingly over the past five years, vividly displays the influences of these two disparate effects. The disease has triggered astonishing hysteria. As a result, AIDS is now viewed, rightly, as a major world health problem.

But much confusion has also been generated. AIDS is certainly not the "gay plague" it is often said to be. It is not contagious, nor can it be picked up from toilet seats, nor can it be contracted by sitting near gays, as is often inferred. In fact, AIDS (an acronym for Acquired Immune Deficiency Syndrome) is a straightforward, but particularly deadly, sexually transmitted disease. It is passed by intimate contact with symptomatic, virus-carrying persons and not through proximity to gays.

At present the risks of catching AIDS are small but they are growing. And thanks to a great deal of misleading media coverage, the public remains

ignorant of the true danger. The story of AIDS is therefore ripe for some considered, lengthy discussions and, as if on cue, a flurry of books about the disease and its victims have suddenly appeared in our bookshops. The results are decidedly mixed, however.

Perhaps the most satisfactory is David Black's *The Plague Years* (Pan £3.50) which chronicles AIDS' devastating impact on the US gay community and charts scientists' attempts to trace and tackle the cause of a disease that is now the main killer of young men in many US cities. The book is written with restraint, warmth and compassion, though it is flawed by the author's tendency to wander off his subject. Also, by being so firmly based on his American experiences the book has only partial relevance to AIDS' spread in Britain.

The same flaws mar Dennis Altman's *AIDS and the New Puritanism* (Pluto £4.95). It covers the same ground, and from the same US perspective as *Plague Years*, though Altman's account is angrier, less compassionate, than Black's.

Greater international coverage of AIDS (which after all, affects Africa just as badly as America) is provided

by Graham Hancock and Enver Carim in *AIDS: The Deadly Epidemic* (Gollancz £9.95). The authors have been scrupulous in their research but completely ruin their efforts with lurid, silly exaggerations and a ridiculous, flimsy style of writing.

The book pays serious attention to claims that AIDS will ultimately wipe out humanity, grossly exaggerates numbers of British virus carriers and in one particularly loopy section warns that AIDS-infected soldiers could easily be transformed into an army "going quietly crazy with lethal weapons". Such silly hyperbole is a fatuous mistake. With thousands dying, millions carrying the virus and the disease spreading rapidly, the facts about AIDS speak quite eloquently for themselves.

A different perspective is adopted by Middlesex Polytechnic lecturer Dr Anthony Vass whose book *AIDS, A Plague on Us* (Venus Academic £7.95) views the impact of AIDS from a sociological viewpoint through an analysis public attitudes to the disease. The result is a mish-mash of opinions disguised as fact, exaggerations and jargon.

Fortunately, an element of sanity and cool consideration is provided by

AIDS researcher Jonathan Weber and journalist Annabel Ferriman in their *AIDS concerns You* (Pagoda £2.95). Written in the form of a series of questions and answers, the book calmly sorts fact from fiction and, in a brief additional section containing a series of interviews with AIDS victims, also places the disease in a telling human context.

These stories are invariably harrowing, such as the tale of Jane, a 33-year-old mother of two, who only had sex with one man - her husband, Jane, who has since died, was not a drug addict nor had she ever been a recipient of contaminated blood. Yet Jane contracted AIDS, presumably from her husband who was an engineer in Zaire, a country with a particularly high prevalence of the disease. Jane, "with her wispy greying hair pulled back in a bun with her comfortable, down-to-earth clothes", is a disconcerting vision of the AIDS victim of tomorrow and her story vividly illustrates the true nature of the danger.

Given that the government's AIDS campaigns remain so woefully restrained and mealy-mouthed, books like *AIDS concerns You* serve a particularly valuable function at present.

Fame-work

Memor of a Thinking Radish. By Peter Medawar. Oxford University Press £12.50, 0 19 217737 0.

Given that he can write lucidly and entertainingly, the memoirs of a great modern scientist still pose one problem: will the general reader understand the descriptions of the work that resulted in fame? Sir Peter Medawar OM gained his Nobel Prize for his discovery of acquired immunological tolerance and despite his scrupulous attempts to describe this and other contributions to his field I am none the wiser. Sir Peter is aware of this problem, however, and very astutely capsulates a number of significant flashbacks between pages 92-122. Nevertheless, the story of his life is interesting. Son of a Lebanese Maronite Christian and an English mother, he was educated at Marlborough (which he disliked: "If public schools are regarded as educational experiments, then they must be judged to have failed"). A better education came via the science editions of *Beast Sixpenny* Booklets. At Oxford he was justifiably proud of his comprehension of *Principles of Mathematics* and, oddly from memory, quotes here the opening paragraph:

An admitted workaholic, he often combined the roles of lecturer, administrator and researcher. Over the years this has played havoc with his health and he has suffered and recovered from a number of major strokes, but has still found time to make another reputation as a writer (*Advent to a Young Scientist and The Limits of Science*).

Among his great enthusiasms are music (particularly opera, but not opera) - and cricket. The latter, during his school days, conjured the idiosyncratic dream of Sherlock Holmes scoring 75 before lunch in a test match. Why not 100, which is statistically and aesthetically more significant?

Memor of a Thinking Radish (the title combines literary similes from Pascal and Shakespeare) also contains vignettes of his unusual brother Philip, and is a tribute to a lady who must be very tough and devoted wife.

Barry Cole



Edward Ardizzone's illustration to accompany "The Blether" is one of the many which enliven James Reeves's Complete Poems for Children, released by Heinemann last month at £8.95. This is a beautiful volume; it will give pleasure to generations of children.

Word perfect



Essentials in Teaching and Testing: Spelling. By Fred J. Schenell, revised by Pamela Wise. Macmillan £4.50, 0 333 39137 3. *Spotlight on Spelling*. By Claire Cootes and Julie Jameson. Alphabet Books, PO Box 75, Colchester CO3 4JS, £10.50, 0 948280 01 8. *Spell it right!* By Michael Temple. John Murray £1.50, 0 7195 4182 4. *Handwriting Punctuation*. By John Davis. Hutchinson £2.65, 0 09 160 741 8. *Positive Punctuation*. By June Evans. Nelson £1.95, 0 17 42346 4.

The first edition of *Essentials in Teaching and Testing: Spelling* was published in 1932 and reprinted 29 times. For this second edition, Pamela Wise has written an introduction describing recent research in teaching spelling, rewritten the dictations which accompany the lists of words, and added lists of new vocabulary such as "Zimbabwe", "Israel" and "knockout".

The main lists, comprising 3,200 words presented in six levels of difficulty, have been left intact, as have Schenell's initial spelling tests. Ms Wise argues that Schenell's approach is still relevant, and points out that he intended that children should learn words as they wanted to write them, that he wished to encourage children to perceive patterns in language for themselves, and that the recommended kinesthetic and tactile support for weak spellers. There is, however, a clear contradiction between the first of these aims and the presentation of large numbers of words in pre-determined lists. This is the nub of the argument between the school of thought represented by Schenell and Sir Cyril Burt, who collaborated on the construction of the tests, and that of Grace Fernald, G. L. Arvidson and Margaret Peters. Fernald contended that "Formal lists will always fail to supply the particular word a person should learn at a particular time", while Dr Peters's

thesis, *Success in Spelling* (1970), showed that spelling is more often effectively and systematically taught on the basis of children's writing. This conflict is not reconciled by praise for Dr Peters's work in the introduction. If her conclusions are accepted, Schenell's lists, if not his "obiter dicta", are obsolete. *Spotlight on Spelling* is the work of two specialist teachers who withdrew children from school for intensive individual tuition in written language for periods of up to three weeks. They say that pupils need "to be aware of basic phonetic principles" before they can begin the spelling programme, which is organized in lists of sounds and patterns, selected according to pupils' errors on an age-related test. The concern for phonetics may be based on the experience of one of the authors as a speech therapist, but the case is not argued in any detail. Greater emphasis on teaching techniques and on the relation of the approach to writing would be needed for it to be recommended for use in schools.

Michael Temple's *Spell it Right!* is a pocket-sized guide for adults which offers a good basic learning technique with lists and examples covering most common pitfalls. It would have been better if it had been based on real writing rather than exercises, but someone wishing to work alone and discreetly could nevertheless find this to be a useful little book.

Both of the books on punctuation are attractively presented, but require incessant copying-out, often of quite lengthy passages. The authors have also included punctuation in address, an issue which needs clarification as the practice has now been abandoned by the Civil Service - including, however, a more fundamental question, however, is whether working through this kind of book is an effective way for most children to learn to punctuate their own writing. Neither author appears to have any doubts, which is a pity since the problem lies at the heart of the dynamics of written language and is therefore considerably more complex than their solution. Recent experience suggests that word-processing may be the way to provide the necessary flexibility, and this aspect of their use could well repay detailed investigation.

John Bald

CHILDREN'S LITERATURE

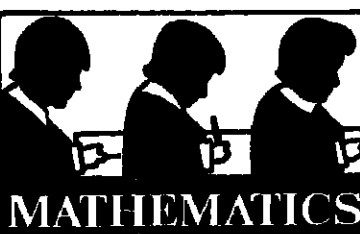
It's OK to say No! By Robin Lenett and Bob Crum. Thorsons £1.99, 0 7225 1328 3. Here, to join the growing number of books on child abuse, is a modestly priced (and produced) paperback which has much to commend it - and contrasts sharply with the book of the same title published by Peter Haddock (reviewed February 7).

The first three well-argued chapters are addressed directly to adults and consider the characteristics of child molesters - the difficulties children have in dealing with them, and the ways in which parents can protect their children. Robin Lenett is President of the Californian-based Children's Justice Foundation, and this background

of children to question adults, even though they represent authority. The remaining two-thirds of *It's OK to say No* consists of short stories for parents to read aloud. Each presents a threatening situation and the child's way out. Together they cover most of the problems likely to occur: from over-friendly Uncle and sweet-talking neighbour to the teacher who trades grades for favours. Only that deeper sickness of parental abuse is avoided. It is always assumed that Mother and Father will make all well, and there is no suggestion that the child's world is not safe.

BOOKS IN CLASS

A for apperception



Pure Mathematics: Essential Theory and Exercises. By P. J. Holt. Hodder and Stoughton £5.95, 0 340 33498 3. *Examinations in Mathematics*. By E. Shipman, M. Kenwood, C. Moss and C. Plumptre. Macmillan Core Books in Advanced Mathematics £4.95, 0 333 39455 0.

Writers of A level maths textbooks assume that because the teachers are maths specialists they will be able personally to supply the environment necessary for the production of real maths - the "why" rather than the "how". The assumption is erroneous: as exam pressures, large syllabuses and shortage of places in higher education have forced even the most committed and imaginative A level teachers to use methods which secure the highest possible pass mark, concentrating on "how" rather than "why", so that the only well-taught problem-solving technique is "where have I seen this problem before?" This traditional

apperceptionist approach - whatever happened to Applicable Maths? - is reinforced by the exam procedure and by the textbooks themselves.

Pure Mathematics is clear and well written, covering the core of the "Pure" half of A level "Pure and Applied" syllabuses. Teachers familiar with Backhouse would have little difficulty transferring to it, and it is better written and easier to understand than Backhouse II. Twenty years ago Holt would have been hailed as a good, standard, traditional textbook. It is that. But there is nothing new here. As a "core" textbook, it contains nothing

on sets and Boolean algebra, matrices, movement geometry, topology or groups. The traditional definition and use of vectors does nothing to lay the foundations for modern algebra. Having said that, and being realistic about maths - as she is taught rather than what Cookcroft would recommend - A level teachers will find the book useful. However, on a practical level, copies of the paperback edition would not last long in the classroom.

Examinations in Mathematics is a book written by examiners, concentrating on exam technique. Intelligent students could pick up some maths while reading it, but the main thrust of the book is to maximise A level exam success. We should question the morality of this. After all, exams are supposed to test ability in maths rather than ability in answering sterile and unimaginable A level questions. But being pragmatic, I think every A level maths department should possess a copy.

Brian Espiner

Core text

Progress in Mathematics. Book 2C. By L. Murray. Stanley Thornes £3.75, 0 85950 180 9.

Book 2C is described as a second year secondary "core" book and is one of a planned series of 10 volumes, though extension volumes will be added later. It is designed to have parallel volumes for each secondary year group; G texts for use with general or average ability pupils and C texts for those who need more challenge. The series is complemented by accompanying mental tests and phase tests for each volume.

According to the publishers the series is already widely adopted and offers a soundly based modern course which fulfils the main recommendations of the Cockcroft report. The text is without colour but is clear and well illustrated and contains numerous, carefully graded questions. The author has allowed the teacher a freedom of approach when introducing topics by including very few worked examples concentrating instead on offering starting points for discussion. Revision work has been provided where necessary, the author has included a revision section every six chapters, and certain exercises are identified as being copyright free thus allowing teachers to photocopy.

As stated, estimating, counting and measurement, consolidation and practice and testing are all given prominence. The author has also provided opportunities for students to be involved in investigations, games and puzzles, practical work and problem solving. The use of a calculator is also encouraged. I have no hesitation in recommending this book to any teacher seeking a scheme which does more than pay lip-service to recent reports. I do question, though, the publishers' use of the word "modern" in describing the course. Modern in content it is not. Up to date in suggested methods of working and the use of everyday examples it most certainly is.

Peter Connah

Lower levels

ST(P) Mathematics 3B. By L. Bostock, S. Chandler, A. Shepherd and E. Smith. Stanley Thornes £4.95, 0 85950 209 0.

This is one of two volumes for the third year level of a secondary school course. Book B is written specifically for those "aiming at the middle and lower level GCSE papers in mathematics - a number of intriguing questions

spig to mind. Presumably some pattern of streaming or setting pupils is anticipated, since there is a parallel book 3A for higher tiers. (Books 4A and 4B, 5A and 5B, are due to follow.) Is the vogue for mixed ability classes then already outmoded? Again, is GCSE mathematics to bear the closest possible resemblance to the work undertaken by good CSE or weaker O level pupils? Or, at least, will a selection of GCSE mathematics (and of the examination papers) be likely to match that work? Is the teaching approach to

stay in the mould of previous decades, or will the post-Cockcroft era really introduce something different?

Put somewhat simply, the proclaimed criteria for GCSE mathematics could be said to emphasise practical and investigational skills, pay special attention to mental and oral work, and provide examinations with a course work element testing pupils' ability to think mathematically, adapt to new concepts and apply their knowledge. No doubt every new textbook will have such factors in mind, and certainly the Stanley Thornes team of authors must have thought deeply about the sort of conundrums raised above, and many others.

When books 1 and 2 appeared, I anticipated that their series would gain a substantial following. The clear writing, appropriate exercises, and pleasing appearance of text and diagrams, all made a favourable initial impression. Book 3 confirms this. If the result is not so very different from what the team might have written before GCSE was dreamed-up, the authors are not to be blamed. The fault, if fault there be, is inherent in the chaos and confusion that has surrounded school mathematics for so long.

F. W. Kellaway

Storytrails Mastermind Competition



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Jegey Heeks

Monumental tribute

The Collected Works of Walter Bagehot. Edited by Norman St John Stevas. Volumes XII-XV. The Economist £280 the set.

The publication of these four volumes completes the monumental edition of the works of Bagehot begun 25 years ago.

Volume XII contains Bagehot's letters from 1831 to 1853. Volume XIII those from 1853 to 1877. In a long and informative introduction, the editor, Norman St John Stevas, shows where they belong in Bagehot's life and development, so that by the end, there is, in addition to other information that may help in their understanding and appreciation, a biographical sketch. It will by now be scarcely necessary to mention the painstaking work and meticulous scholarship that distinguished this edition. And yet, this notwithstanding, what is

particularly striking (in contrast with so many learned editions of other writers) is that the text is nowhere overburdened with notes which, here, are judiciously limited to what is essential.

Volume XIV contains a miscellany of productions: juvenilia, speeches delivered at the University College debating society during Bagehot's student days, articles and papers contributed to various magazines from 1853 to 1874. Volume XV contains Bagehot's later appreciations, and sundry other matters. There is a bibliography of Bagehot's writings.

The edition is a fitting tribute to a man whose many-sided accomplishments make him stand out from among the many contemporaries who have claims to greatness in more limited spheres.

Pierre Watter



Watercolour of "Seagulls" designed by C.F.A. Voysey c1890-1. From *Liberty Style: The Classic Years 1890-1910* by Maryn Levy (Weidenfeld & Nicolson £18.00).

Barry Cole

Among this week's contributors

John Bald is tutor in charge at the Reading and Language Centre, Colchester Institute.
Michael Marland is head of North Westminster Community School.

Robin McKie is science correspondent of the *Observer*.
Nicholas Shrimpton is fellow of Lady Margaret Hall, Oxford.

Towards self-scrutiny

The School Library for Multicultural Awareness. By Gillian Klein. Educational Bulletin Special Supplement 23. Tentham Books for University. 23 Tentham Books for University. £3.65, 0 948080 05 5. *Reading Into Racism: Bias in Children's Literature and Learning Materials*. By Gillian Klein. Routledge and Kegan Paul £5.95, 0 7102 0160 5. *The Books for Keeps Guide to Children's Books for a Multi-Cultural Society*. By Judith Klein and Pat Topley. Books for Keeps (1 Hittingham Road, London SE12 6N2) £1.75, 0267 5675.

Although overtly addressed to librarians and those selecting learning materials, these three excellent books are valuable to anyone concerned with racism and curriculum planning. Probably few of the individual arguments, examples, or points are entirely new to most readers who have thought about racism or multicultural education. However, the building up of the arguments is fascinating in each case.

Norman Hewitt's *Preface to The School Library for Multicultural Awareness* makes the crucial point: "There is a danger that this document may be seen as of interest only to some schools, and within those schools, only to the person in charge of the library." In fact six case studies sympathetically but shrewdly described are not only about more than libraries; they are about more reading and learning materials for these are about school management. Each of them shows the

difficulties of change in a school, and ways forward. One school takes a "There are no problems here" approach, and this is effectively contrasted with a junior school where:

It appears that the democratic structure of the school, the openness not just of space but of approach, plus the way in which the staff take their granted their teaching role in multicultural society, suggest that an all-English school - both pupils and staff - can still reflect in its approach a multicultural dimension.

Gillian Klein shows that the school library's approach to the multicultural world is a key to the strength or weakness of its overall management. An interesting indication of overt racism or a 'cast a failure of a deep multicultural approach is how books in languages other than English are housed. As she says of one school: "Community languages are all in the EFL room. This may give the impression to a large number of children in the school that the Learning Resources Centre is not for them." Thus the apparently technical matter of where books are shelved is shown, quite rightly, to be in fact a curriculum statement: books in or on languages other than English should be shelved according to their appropriate subject classification, not quarantined as non-books in an EFL section.

If that book is good reading for all heads and deputies, Gillian Klein's longer *Reading Into Racism* is a useful study for all teachers. Focusing on books for children's literature and learning materials, it is a study in the

than, that for it shows how our attitudes, and thus the terminology, selection of facts, and exposition of all of us can, and usually is, racist. Even recent families with much of the recent analyses of bias in print will find this succinct analysis helpful as a guide to self-scrutiny and the careful selection of all forms of teaching materials. In this detailed account Gillian Klein writes engagingly yet points deeply, for instance being critical not only of the obvious and crude stereotyping of racist jokes, "golfing" and the Eurocentrism of many world study books, but also literature as "social therapy" and such powerful but warring novels as Jan Needle's *My Mate Shogun*.

My only criticism is that the author includes only one page on languages other than English: the possibilities of reading in languages other than English need far more study than English. The third publication is primarily a review collection of all kinds of books for readers of ages eight and twelve. Its three-page introduction on "where we stand" is an excellent reminder of basic principles. The reviews are brief, but judicious. It is interesting to read the review of *My Mate Shogun* in comparison with Gillian Klein's comments. There is an excellent section on six key authors and finally the best collection I know of organization, journals, bibliographies, specialist book awards, publishers, and specialist book suppliers. Every junior school will want a copy of this practical guide.

John Bald

THE COMPLETE PLAIN WORDS

By Sir Ernest Gowers

Revised by Sidney Greenbaum & Janet Whitcut

For over 30 years the writers' guide through the intricacies of the English language, *The Complete Plain Words* has now been thoroughly updated to reflect current thinking on vocabulary and style.

General principles; good practice - and bad; once-common terms which now seem dated; pompous or obscure; the use, overuse and misuse of new expressions - all are tackled with wit, elegance and humour.

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ISBN 0 11 70121 5 Hardback
Special price until
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HMSO CELEBRATES BICENTENARY YEAR IN STYLE

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ARTS

Marina Tsvetaeva - Poet, Outcast, the "platform" production which opens at the National Theatre on Monday marks the emergence of an unusual talent with an even more unusual background. The show's creator is a forceful young Russian named Irina Brown, whose career, which started when as a stage-struck 13-year-old she joined the Theatre of Poetry at the Leningrad Palace of Pioneers, reflects an astonishing firmness of purpose.

The Theatre of Poetry was a fall-back: she had first wanted to join the local youth theatre "but I was too big and fat for my age - I looked five years older than everybody else". At school she was already producing plays in the prevailing fashion set by the great director Yuri Lyubimov - biographical compilations of poetry - and casting herself in gypsy or bawdy parts. When she was 15 she adapted Ostrovsky's *Snow Maiden*, interpolating her own verse and turning the production into a courtroom trial.

For a reason which she amiably refuses to divulge to newspapers, she was unable to go on to the Leningrad theatre institute: she went instead to read English at the pedagogical institute where, with the aid of the canned voices of Laurence Olivier and Paul Schofield declaiming "To be or not to be", she acquired her near-impeccable accent. "It's a brilliant system - and it achieves incredible results." For several months, till nervous exhaustion forced her to stop, she was also putting in seven hours a night on fringe productions, but the obsession soon reasserted itself in the form of a musical adaptation of *Winnie the Pooh*. The whimsical book has always been popular in Russia, and when Irina stumbled on him she immediately recognized his dramatic potential. "At that time I had the capacity to inspire anyone to do anything if I believed in it strongly enough, so I collected a bunch of students, wrote the show, and it was an instant success, the joy of life came spilling out." She thinks the local renown which this show won was instrumental in landing her a good teaching job a little later.

Then she fell in love with an English boy - plays "It took me two years to realize that I loved this man more than anything else in the world" - and duly left her native land. Assuming that she would never see him again, she



A Pioneer from Leningrad

Michael Church meets Irina Brown

London, she chose to do a course as a guide. "That was the best decision I ever took - in six months I learned as much about London as other people do in 10 years." Then, just for the hell of it and expecting rejections all round, she fired off a salvo of theatrical applications, but instead got accepted all round, and opted for a place on the drama studies course at Royal Holloway College. The curriculum sounded marvellous, but the course was a great disappointment: "There were some brilliant teachers, but most of it was for 18-year-olds to grow up on. I got absolutely nothing out of it."

Once more assuming defeat she sent herself on a history of art course at Birkbeck. "I said OK, I'll make myself a better guide" - but this course, which meant that she would

then, to the Drama Centre and school workshops with Nexus Opera, then to an invitation to assist Lyubimov on his London production of *Crime and Punishment*, then an invitation to work with Andrei Tarkovsky on *Boris Godunov* at Covent Garden, and then, to her delight, appointment as a staff director at the National. *Pravda*, *Mrs Warren's Profession*, *The Cherry Orchard*, *Futurists*... and now full circle to the game she played as a teenager, a compilation to celebrate a poet.

Tsvetaeva, one of Russia's greatest 20th-century poets and a tragic casualty of Thirties Stalinism (she hanged herself in 1941), has long been in Irina's directorial sights. The show, she says, will be a meeting with an "angel of her soul". Fiona Shaw

currently making the best of a near-impossible job in Ariane Mnouchkine's over-typed and lifeless *Mephisto* at the Barbican, will play the poet. (Irina: "She looks exactly right, as well as being a fantastic actress.") When I talked to her Irina was not prepared to be drawn on any details of the show's staging (amiably refusing to be drawn, notably over anything political, is one of her particular strengths). "You'll simply have to come and see it." OK, I will.

Marina Tsvetaeva - Poet, Outcast will be performed by Fiona Shaw, Judy Monahan and Nicholas Le Prevost on May 12, 13, 28 and on June 2, 11, and 13. Marina Tsvetaeva: A Captive Spirit in Selected Prose, with an introduction by Susan Sontag, edited and translated by Marina Tsvetaeva, is published by Virago at £5.95.

Television

Do not adjust...

For rather different reasons, both British and Soviet television seized on the students from Kiev, whose departure from Moscow and arrival at Heathrow, in borrowed track-suits, became the nearest television could manage to live coverage of "the world's worst industrial disaster" (as Ludovic Kennedy pointed out on *Now You See It*, BBC2, May 2, "the world's worst nuclear disasters" were still the ones that occurred at Hiroshima and Nagasaki). Otherwise, there was that black-and-white photograph of the Chernobyl power station, part of its roof looking as if it might have been airbrushed out like a fallen party dignitary at a May Day parade; repeated scenes of the newscaster on *Vremya*; normal life in Kiev continuing at some time in the past; queues in Sweden and Poland; and on own experts saying they would need more information before they could decide precisely what had happened, while our own representatives from the CEGB and the government assured us that, whatever it was, it could never happen here.

By the weekend, the experts were reaching some conclusions. If we watched Weekend World (TV), followed by This Week Next Week (BBC1), on May 4, you might have a clearer view of the matter. The first distinguished between the different types of nuclear reactor and the political as well as the economic motives of British nuclear policies. The second polled public opinion to assess variations since the Russian disaster. Both questioned spokesmen for political parties and the industry. Sovieteccey meant, at least, that discussions of the broader issues could not be shelved while we caught up with the news.

Uranium fuel rods may sometimes work too hard, but they don't go on strike, so the government probably sees them as preferable to miners. The trouble is that it may not always be politically expedient to mention such political motives for choosing the nuclear option, so the risks have to be disguised or explained away by some other means. But good public relations, whether for nuclear power or the American space programme, can become an end in themselves, as Pantheon (BBC1, April 28) argued in its investigation of the shuttle disaster.

There were revelations of the wartime rivalry between SIS and SE, in *Timewatch Special* (BBC2, May 1) which studied evidence that friction between the two services had led to the destruction of a resistance network in France and the capture of hundreds of *résistants*. Doing some undercover work of its own, *World in Action* (ITV, April 28) disclosed some very disturbing facts about private residential homes for old people, made all the more horrifying by the interviews with active and well cared for residents of good homes on which the programme opened.

From the "Head of a Cleric" by Fra Angelico (or Gozzoli?) to "A Female Head" by Burne-Jones, the human figure dominates, with celebrated works by Michelangelo, Raphael and Holbein and superb examples by Rubens and Piazzetta. There are less elevated, clothed studies of skaters by Avercamp and a backdrop of two ladies apparently wind-swept by Paul Gauguin. Animals appear too; mythically in Altörfer's "St George and the Dragon" and domestically in Dürer's exquisite greyhound. But there is also an opportunity to compare very different and foreign landscapes by Rubens, Claude, Guercino and Canaletto, which will surely appeal to British hearts.

Robin Buss

Royal feast

Master Drawings in the Royal Collection. The Queen's Gallery.

For the first time since it opened in 1962, The Queen's Gallery has assembled an exhibition of drawings from the Royal Collection. With around 30,000 to choose from (there are 600 by Leonardo alone), the selection of 149 may seem too few particularly when the show covers over 500 years of European art but, except for the 19th and 20th centuries which are the weakest represented, the quality is so high and the range of subjects and media so wide that this is one of the richest visual feasts available at the moment.

From the "Head of a Cleric" by Fra Angelico (or Gozzoli?) to "A Female Head" by Burne-Jones, the human figure dominates, with celebrated works by Michelangelo, Raphael and Holbein and superb examples by Rubens and Piazzetta. There are less elevated, clothed studies of skaters by Avercamp and a backdrop of two ladies apparently wind-swept by Paul Gauguin. Animals appear too; mythically in Altörfer's "St George and the Dragon" and domestically in Dürer's exquisite greyhound. But there is also an opportunity to compare very different and foreign landscapes by Rubens, Claude, Guercino and Canaletto, which will surely appeal to British hearts.

Name-drop

Our review of Frances Spalding's British Art Since 1900 (TES May 2) implied that Anish Kapoor was not included in the author's discussion of the integration of non-English artists into British art. We would like to point out that Mr. Clarke's original text stated that this artist's name was omitted from the index. He is, in fact, referred to in the text, together with a reproduction of one of his sculptures.

Next week

"Glorious" Revolution? Lord Fitt on the routine lie promulgated in history lessons, and on what must be done to eradicate it. The American presidency: Gillian Peck on its past, present and future.

Opera

Mythopoeic decisions

by Patrick Carnegy

It is a disconcerting fact that from the point of view of an opera composer in search of a subject, one myth may be almost as good as another, if not actually interchangeable with it. Not least of the intriguing things about Harrison Birtwistle's *The Mask of Orpheus*, whose world premiere will be at the London Coliseum on May 21 (with seven subsequent performances) is that it started life as a Faust opera. In a fascinating lecture at Goldsmith's College last month, its producer David Freeman, of Opera Factory fame, explained that the work began life as a musical concept in search of a story line, which might easily have been some variant of the Faust legend before Birtwistle's long-standing preoccupation with Greek myth asserted itself (many will remember his music for Peter Hall's *Orestes* at the National Theatre) and *Orpheus* became the subject. The English National Opera's education department has organized an exciting programme of mostly free introductory events, "Birtwistle Unmasked", beginning on May 14, and a leaflet is available from the ENO, St Martin's Lane, London WC2N 4BS, for the price of an aac marked "Mask of Orpheus".

Ferruccio Busoni (1866-1924), whose *Doctor Faustus* is currently playing at the ENO, also suffered from mythopoeic indecision. That opera might equally have ended up about Merlin or Don Juan. It was only after he had toyed with the real-life Italian Faustians, Dante and Leonardo, that Busoni realized that he could not resist the lure of the legendary Faust himself. Avoiding Goethe, Busoni reached back to the 16th-century knockabout puppet plays as a strategic mask with which to create a work that would be at once a creative confession and a prophetic protest against the modern world's arrogant scientism, with its attendant severance of thought from feeling and instinct.

The ENO has now given *Doctor Faustus* its long overdue British stage premiere, with the help of Antony Beaumont, leading authority on Busoni, whose archival discoveries have produced new scenes, including a revelatory new ending. Superbly conducted by Mark Elder, this must rank as one of the most important operatic events in recent years, introducing an unjustly neglected work in an inspired production by David Pountney which comprehends Busoni's conception from the inside out: the German,

philosophizing content is embodied in an utterly compelling piece of theatre. The elegiac strands of Busoni's music hold no terrors for the listener. Much of the opera is a reflective farewell to the musical tradition which lies behind it, just as the score itself refers to a great many of Busoni's own previous works. Like Bach, Busoni knew how self-quotation can be turned to wholly creative account.

Thomas Allen's powerfully-sung Faust is a modern technocrat who has no qualms about splitting himself off from every inconvenient human attribute if only it will help him split the atom. An outstanding coup of the production is that Mephisto is not a conjured-up pastboard villain, but emerges from under Faust's cloak - the personification of his suppressed humanity, reborn in malignant form. Graham Clark plays Mephisto as a leering, quicksilver parody version of Faust himself - a valuable reminder of the puppet play sources from which the work sprang.

Women never fare well in Faust stories, and although there's little to be done about this, David Pountney is right to disabuse his hero of Helen of Troy's supposed perfection (she appears as a slovenly hooker), and to underline Busoni's irony that it is only through his lust for the Duchess of Parma (Ellene Hannan) that *this* Faust eventually achieves - shall we say - enlightenment.

The vertiginous filing cabinets and dangerously raked floor, of Stefano Lazard's design for Faust's study are the appropriately Kafkaesque setting for the story of a man who eagerly gives himself up for torture in a machine of his own devising. The staging is a consistently virtuoso tribute to the expressionist theatrical style of Wedekind which Busoni himself knew so well. There are further performances of this splendid show on May 15, 20 and 24.

A brief final commendation of Peter Stein's justly acclaimed *Otello* for Welsh National Opera which can be seen in Cardiff on May 20 and 23, and then on tour in June and July in Bristol, Oxford, Birmingham, and Llandudno. It will be joined by new productions of *The Barber of Seville* and *Wozzeck*, with openings in Cardiff on May 6 and 21. If the WNO's recent track record is anything to go by, these will all be contributions to an exceptionally rich spring harvest for opera lovers.

ARTS



Impossible lives

Love Letters (18) Cannon, Tottenham Court Road Vagabonde (15) Renoir, Russell Square. Minerva, Knightsbridge.

Two films about women, by women directors, very different in style. *Vagabonde*, using a large cast of mainly amateur actors, is a picturesque documentary-drama; *Love Letters* a romantic story structured around the letters which Anna discovers after her mother's death and in the artificial light of which she interprets the circumstances of her own life. As the "other woman", she has to decide whether to accept that her affair with Oliver is a dead end and sacrifice it to her mother's memory, or to make her choice between her and his family.

What she fails to realize is that she has misread history: the quality of her mother's relationship with Joseph derived from the values of a generation that accepted the sacrifice of personal happiness for the sake of the family. In Oliver's case, whatever he chooses will be for selfish motives and by obliging him to make a choice, she clarifies nothing except the self-indulgent nature of their feelings.

In this way, the device of the love letters becomes an ironic comment on Anna's situation and Amy Jones's film is consequently rather more than the romantic melodrama that it appears at first sight. But the settings are conventional: he a successful photographer, she a successful disc jockey, both predictably successful in the scenes which earned an 18 rating for the film. Were it not for the seriousness that Jamie Lee Curtis

brings to her performance, Anna could be dismissed as merely spoilt and silly, when, in the event, you feel sympathy and end by being involved in her self-delusion.

Sans toi ni moi, the original French title of Agnès Varda's *Vagabonde*, more accurately conveys the spirit of a heroically anti-social character. Mona (Sandrine Bonnaire) believes that freedom means never having to say "thank you". She wanders through the vineyards and small towns of Southern France, observed and photographed with a precise sense of the place and its inhabitants, in mid-winter, marginal even to the *marginaux*, drop-outs, ecologists and self-sufficient farmers she meets on the way, a one-woman alternative society. The North African vineyard worker who is the one person whom she seems any real attachment to, rejects her. Eventually, as we know from the start of the film, she freezes to death.

Varda does nothing to make her character attractive in conventional terms: Mona smells, prefers lying in bed to helping on the farm and takes advantage of the generosity of anyone who will put up with her. Her one quality is a ferocious desire for freedom and her failure to achieve it, with the implication that it is unattainable, makes the story interesting and, ultimately, moving. Like Anna, she has chosen an impossible life, but her reasons, unlike Anna's, compel admiration. The moral is still the same: however you try to buck it, the system will win in the end.

Robin Buss

Above: Jamie Lee Curtis in *Love Letters*

Radio Pickings

Once upon a time, On Your Farm (Radio 4, Saturdays 7.15am) was a specialist programme for farmers only. Apart from the occasional (and almost always entertaining) discussion over a genuine farm breakfast, it was very much a forum for their private grumbles. Indeed, it is not so long ago that one East Anglian farmer was on it dismissing the Send a Tonne to Africa campaign as a "gimmick".

For the last year or so, its producer has been Liz Rigby, a former agricultural journalist. She has been lucky in that her tenure has coincided with the farming industry's belated concern with its own image but it has become a lively general interest programme in which organic crops and hedgerow cultivation are taken for granted. It deserves its repeat on Monday evenings, just after *The Archers*.

Far from being an exercise in agricultural propaganda (as was the original intention when it started back in 1950), *The Archers* now seems to be officially a "social comedy". Its producer, William Smethurst, having done for both Doris and Dan, is departing to rescue the ailing *Crossroads* motel; his successor is Ms Rigby. There are those who felt that the new producer of *The Archers* might perhaps have been someone with experience of radio drama production (Discuss, on one side of the BBC Club only) but the serial always has had a journalistic and popular touch.

Whether a similarly distinctive appointment will be made to an even more powerful and prestigious job is an open question. The mandarins of Portland Place are now looking for a new head of Radio Drama: someone whose department is supposedly the jewel in radio's crown even if some of its plays are hopelessly over long (presumably because no competent writer is prepared to write for the fees paid for a radio play). The appointment of someone prepared to make genuinely popular original drama and maybe borrow one of television's most successful formats, the series, *Kuano* (which was usually classic) but in recent years has spawned an equivalent, *Upstairs, Downstairs* or even *Bergerac*. Please can we have a radio series in which the characters grow week by week, but which makes sense to those of us who cannot hear every episode?

It has been left to the Light Entertainment Department to come up with a promising adaptation of Le Carré's *The Spy Who Came in From the Cold* (Radio 4, Mondays 12.27 and Tuesdays 6.30). Already it is developing a nicely downbeat tone with Colin Blakely gruffly convincing as Alec Leamas. Radio borrows another novel next week when Nevill Shute's *No Highway* begins on Sunday (7pm).

The Drama Department's view of popular drama can perhaps be detected from the publicity material for an Afternoon Theatre next week. Of its author, "Juliet Ace is currently writing the TV soap, *Eastenders*, but her more distinguished work is for radio." Let's just hope it has the same sureness of touch.

David Self

Oliver's tales

Nick Baker listens in...

Oliver (he uses only his surname) describes himself as "an animator and performer". In fact, he's a storyteller, and can deliver in a classroom, youth club or library any number of "off the peg" stories for a variety of age groups. What he's best at, though, is getting the audience to do the storytelling. He acts as a catalyst and editor, inspiring children to contribute their own ideas, collecting them, setting them to music and shaping them into a recognizably narrative form.

Music is quite important to the whole process. At the beginning of an hour-long session with some six and seven-year-olds at Annerley School in South London he asks the children why some films and television programmes have music. "For special parts and things," replies one sensibly. Oliver's Tales are more or less all special parts and stunts. To a dramatic



guitar accompaniment, he begins: "This story is all about..." It's a deliberate anti-climax: "If you could have a story about anything, you wanted, what would it be about?" "Ghosts?" "Us?" The answers come thick and fast. The technique for dealing with them is deceptively simple. Oliver scoops up all the ideas and strings them into a plot opening. No matter how disparate, how silly or how impossible, he values each contribution equally, and manages to get them

all in. He also senses the atmosphere required. These children want an enjoyable scare. They want a haunted house in the countryside. "Where's the countryside?" Easy. "Through Penge, past the sea-side." As the story unfolds, Oliver begins to demonstrate an almost uncanny knack of remembering his audience's names. Not only their names, but their personalities, as represented by their classmates. He uses the past tense throughout, thus maintaining the storytelling atmosphere but also plac-

ing the events at a safe distance. He's no Julian Bream, but he uses the guitar to great effect. It supplies effects for hill climbing, door creaking and ghost busting. Hitherto silent children, emboldened by their classmates' success at having all their ideas incorporated, begin to speak up. Fears are savoured and exorcized. The Bogey Man they create between them would make Raymond Briggs feel sick. I sense that Oliver would dearly like Apple Man (an inspired six-year-old's creation) to be a goodie, but the children are having none of it. They eat him.

At the end of the session, Oliver insists that the children tell the story to somebody else - mum, friend, or neighbour. He's a vigorous proponent of the oral tradition. "The best way of remembering a story is to tell it again," he says, relishing the prospects of adaptation and embellishment as the story is passed on. He's a critic of the idea of writing the sessions as a stimulus for writing, and would prefer to see them inspiring art, drama and games. "You have a great experience" (and it seems that the children he works with are invariably the heroes of the tales, thus making them that bit more direct) "and then you lose it because of the mechanics of putting it on paper," he tells me. Then it's off to another class for some more story making. This time, he senses the children's want for comedy, and the story involves a dinosaur, a wig, some hair lacquer, a parrot and some monkeys. For booking details ring 01-236 1811.

Contemporaries

by Michael Clarke

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What is important for the organizers is "the underlying significance of the spectator's relationship to the work on view and how responsive and imaginative they are prepared to be". But if visitors are too nervous to confront the

pieces alone and unaided, there is an extensive educational service to help them. Along with a teachers' pack, there is a guide to the exhibition by Anna Harding which suggests ways of looking at 12 works. Each day at 2.30 pm, a "teaching" artist will give a guided tour and on Mondays at 6.30 pm, exhibiting artists will discuss their work with the organizers. For advance booking arrangements and further information, telephone Jackie Perry on 01-928 3144.

Above: Giuseppe Penone. "Il Verde del bosco" (1984). Photo: J. P. M. / Contrasto

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Next week

"Glorious" Revolution? Lord Fitt on the routine lie promulgated in history lessons, and on what must be done to eradicate it. The American presidency: Gillian Peck on its past, present and future.

Paul The Shadow: Recent British and European Art. The Hayward Gallery until June 15.

This year's Hayward Annual is unusual for several reasons. For the first time, British artists are shown alongside their European contemporaries and five of the thirty-two exhibitions are no longer alive. The Americans are deliberately excluded. According to the organizers, Barry Barker and Jon Thompson, "Art since the 1960s has been dominated by the financial and entrepreneurial power of America" which "shaped and legitimized precisely those 'modernist' tendencies which we, in mounting this exhibition, have most set our faces against." For them, the vanguardist impulse has run its course, and, sceptical of any utopian notions of progress (hence their title from Eliot's "The Hollow Men"), they have given their support to what they call "a new pluralism".

The exhibition, however, is too partial and idiosyncratic in its selection to reflect the true diversity of contemporary art and although the work of past artists may not be there to establish precedents, it does strongly suggest continuities of interest, like the placing of Lucio Fontana's "Spatial Concept", a perforated pink canvas with a white rounded border, adjacent to Wolfgang Laib's "Pollen from Pine", a haze of yellow dust on the floor of stark-white chamber. Marcel Broodthaers, who died in 1976, dominates the show with seven pieces, from photocollages like "La Théorie des Figures" to "Tapis de Sable", a live palm in the middle of a carpet of sand with stencilled alphabet, the tree and letters reappearing in a painted pendant on the wall.

In the entrance is Broodthaers' "English Poets", nine typographical panels with inscriptions like, "The Dismissal of Swift", "The Turpitude of Wilde" or "The Mind of Joyce", and it is here that the exhibition seeks to establish the absence of any didactic argument or overt theme. Richard Long's enormous mural "Falls of Muldy Water" (it is just that) hangs next to Graham Charlton's monochrome "18 Part Corner Painting" and opposite a



Contemporaries

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Royal feast

Master Drawings in the Royal Collection. The Queen's Gallery.

For the first time since it opened in 1962, The Queen's Gallery has assembled an exhibition of drawings from the Royal Collection. With around 30,000 to choose from (there are 600 by Leonardo alone), the selection of 149 may seem too few particularly when the show covers over 500 years of European art but, except for the 19th and 20th centuries which are the weakest represented, the quality is so high and the range of subjects and media so wide that this is one of the richest visual feasts available at the moment.

From the "Head of a Cleric" by Fra Angelico (or Gozzoli?) to "A Female Head" by Burne-Jones, the human figure dominates, with celebrated works by Michelangelo, Raphael and Holbein and superb examples by Rubens and Piazzetta. There are less elevated, clothed studies of skaters by Avercamp and a backdrop of two ladies apparently wind-swept by Paul Gauguin. Animals appear too; mythically in Altörfer's "St George and the Dragon" and domestically in Dürer's exquisite greyhound. But there is also an opportunity to compare very different and foreign landscapes by Rubens, Claude, Guercino and Canaletto, which will surely appeal to British hearts.

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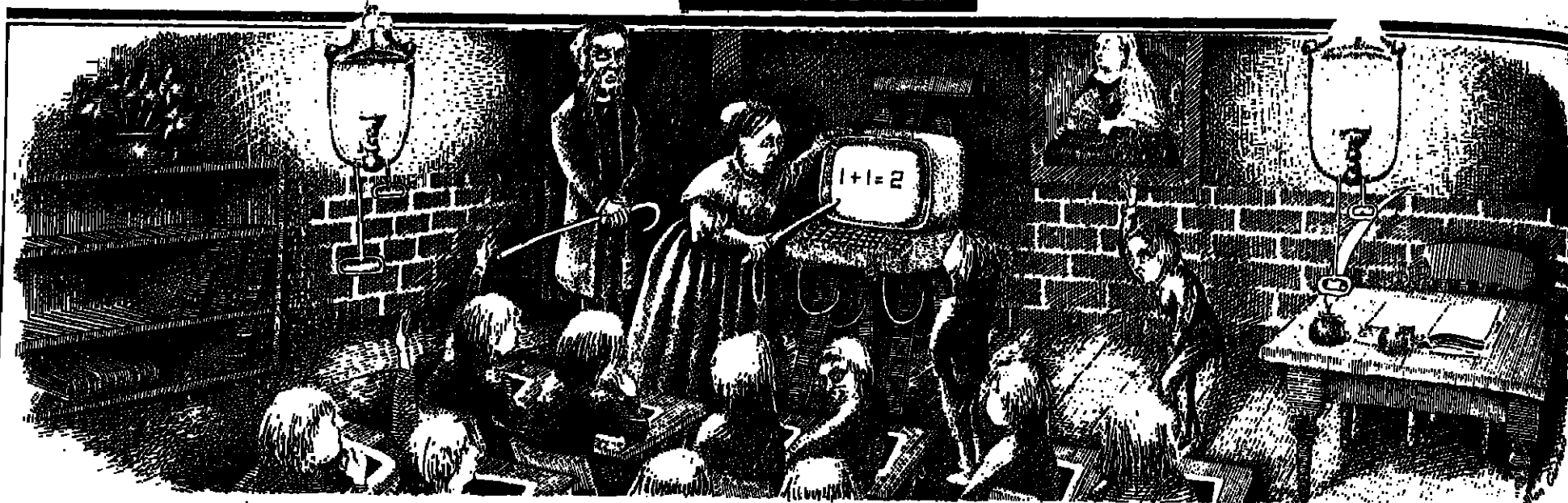
"THE YOUNGSONG" MUSICALS

SECONDARY AND MIDDLE In Great Grandmother's Day

Drama of 1914 children who went on strike FOR their teachers. Chie Adams moving new musical view 2 hrs. 10.00.05

The Factory Children Rich most poor in the Irish industrial 1830s. Performed all over the U.K. 90 mins. £10.15.

The Evacuasee City kids sent to the country in war-torn 1939.



A sorry state of affairs

Anita Straker responds to new evidence that computers are grossly underused in primary schools

The Microelectronics Education Programme ended on March 31, and with it the MEP Primary Project, a national support scheme for computer education in primary schools. Anita Straker was Director of the Primary Project.

At the end of any era there is a tendency to become nostalgic, to convince oneself that things will never be the same. The nostalgia might be good for one's morale. But looking around more objectively, it is hard to find signs that the MEP Primary Project even existed.

There are certainly a few schools where the micro is used to extend the opportunities for children to undertake investigations or to solve problems, but the majority have still not moved on from the use of drill and practice games.

Recently Pauline Bleach of the reading centre at Reading conducted a survey throughout England, Wales and Scotland (see page 8). This showed that in 30 per cent of the schools one of the Microprimer programs, *Animals*, *Brick Up* or *Box Crier*, was among the three language programs which were most commonly used. When the schools were asked to state the major contributions which the computer makes to the children's learning, 70 per cent mentioned spelling practice, 58 per cent alphabet skills and 53 per cent anagrams.

In the old days, before computers arrived on the scene, anagrams were something that the children did on the last afternoon of term. Nobody ever suggested that they were anything more than an amusing time-filler, yet now they have assumed a place of importance in the curriculum, simply

because they are easy to do on the computer.

Why was wordprocessing, offering a realistic means of drafting and re-drafting, mentioned by only 23 per cent of the schools in the survey? Not one school mentioned wordprocessing. Not one mentioned *Mallory*, a who-dunn-it game in which children can create their own characters and scenes. Only 4 per cent named *Developing Tray*, a marvellous program for stimulating children's appreciation of the cohesion of text. Yet *Mallory*, *Tray* and *Writer* were distributed to all local authorities among the materials produced by the MEP Primary Project, and permission was given for free copies to be made for schools.

Pauline Bleach's survey was concerned with the impact of the computer on the language curriculum, but there would probably be parallel trends in other areas. The most commonly used programs would be *Shape Shooter* and *Trains*, or their equivalents. The major contribution to the children's learning would be described as being "for arithmetic practice" or "for shape recognition".

Few schools would mention the power of turtle graphics. Few would be making use of the mathematics software distributed by the Primary Project: a small investigation like *Bounce*, a graph-drawing program like *Data Show*, or a database like *Ourself*.

Are there any excuses for this sorry state of affairs? Some perhaps. The blanket introduction of micros into primary schools has happened at a phenomenal rate. When the Department of Trade and Industry launched their hardware scheme at the end of 1982, they could have had little idea of what the possibilities might be - the

theory had not had time to develop. Schools can hardly be blamed for not putting the theory into practice, when there is still confusion among those who advise them about what is needed.

For example, one well-known journal which many primary schools take in order to glean information from its reviews recently awarded the score of 3 out of 10 to the mathematical adventure game *L*, which is packed with puzzles and starting points for investigations. On the same page a score of 8 out of 10 was given to a practice program on telling the time.

Shortage of resources might of course be affecting the situation. Unlike the DTI hardware scheme for secondary schools, the hardware initiative for primary education has not been succeeded by further financial support. Pauline Bleach's survey showed that 40 per cent of primary schools have no printer, both essential pieces of equipment if children are to use powerful software like a word-processor or a database. Some local authorities have made sure that their primary schools have both a printer and a disc drive; many have not.

The survey also indicated that primary schools are short of good software. For 60 per cent of them the Microprimer software, which came free with the software in the school, was more than half of the software in the school. Fewer than 14 per cent had software from sources like the MEP Primary Projects; 40 per cent of primary schools said they never bought software.

One reason for this could be that they cannot afford it. Another might be a lack of information about what to buy. The present DTI scheme which provides a half-price rebate on software might help here, but only if

schools are sufficiently informed and confident enough to use the scheme for the purchase of the best material.

One final and perhaps the most compelling excuse is the depressingly slow rate at which primary teachers are being given opportunities for professional development. In the Bleach survey, 13 per cent of schools said that they had not yet been offered the two-day introductory course which was a mandatory part of the DTI scheme. A further 64 per cent said that an introductory course, which taught them how to switch a micro on and off, and how to load and run simple programs, was all that was provided.

The implication is that only a few teachers in approximately one quarter of all primary schools have had a chance to consider the curricular implications of the best and most substantial pieces of software. The quality of the education which we can offer children depends heavily upon the quality of our teachers, and that in turn depends on the professional development and support which teachers are offered.

Some local authorities have of course made provision for continued in-service education at the primary level (in some cases their plans have been thwarted by the prolonged teachers' action). But some have made no plans. Some are ensuring that there are opportunities for primary head teachers to consider policies for the acquisition and deployment of hardware and software in their schools, and of their staff. Yet recently when I suggested to one senior primary inspector that meetings of head teachers be held to consider how these could be implemented in their schools, I met with a less than positive response. "There are," she said, "other priorities."

Microcomputers are cheap and powerful tools; they will get cheaper and more powerful. They are entering homes, offices, factories and schools. The invention of the microcomputer will probably be as significant as the invention of the printing press, in its effect on the lives of children in our primary schools. Just books can be used to enhance and extend children's education, so should computers. Just as children need to appreciate the versatility of books, and learn how to use them to fulfil their own needs, so they need to learn how to control computers.

A confidence in using books is a acknowledged necessity for the present century, but we are now preparing children for life in the 21st century, where everyone will come into contact with microelectronics in many different forms. You would have thought that the few computers in our schools would be overworked in the attempt to give children an equivalent confidence.

Pauline Bleach's survey highlighted the fact that in only 17 per cent of primary schools were their computers in use for most of the time. Without more information it is hard to know why 83 per cent cannot find a full-time use for their equipment. Have the teachers become disillusioned with anagrams, spellings and sums on their computers, and are they waiting with enthusiasm for further in-service opportunities? I hope so.

The Microelectronics Education Programme (MEP) ended on March 31 1986. The Microelectronics Education Support Unit (MESU) began, quietly, on April 1. If we are to move forward, and not backwards, MESU will have to act quickly in order to provide the help that is patently still needed.

Customer centred

The Marketing Mix Channel 4 Mondays 6.30 pm.

The Marketing Mix is Yorkshire Television's contribution to Industry Year. Ten programmes are aimed at showing that marketing is much more than just selling. It is a mix of activities which enables businesses to identify markets and to design products which meet people's needs. Marketing is a vital business philosophy - a total approach with the customer at the centre. In the first programme the question of what marketing is about is answered by reference to the packaging, advertising and selling of Madame

Tussauds. Different marketing strategies are examined and there is an interesting discussion about pricing. The production is of a very high standard and includes the right balance of filming, commentary, interviews.

In subsequent programmes, which are of an equal standard, there is an examination of image creation and the role of the researcher. Finding the right type of customer has become a very scientific process. The importance of powerful computers and large databases is examined and viewers will be amazed at how much information the marketing managers have at their disposal. The implications of the rapid growth of the information industry is something everybody watching will want to discuss.

It seems that almost any project can be successful if it is marketed well. The third programme, for example, looks at how careful packaging has turned Bradford into a city offering endless opportunities for industrialists and tourists. The fourth includes an

examination of the success of Next, the high-street store which started out by challenging the way in which its competitors displayed and promoted their clothes. Rather than attempting to sell to a wide range of people, Next decides on its customer profile then markets its products directly at them.

This excellent series will be of use to a wide range of people. In schools it will be helpful for Business Studies and stimulating in General Studies. In colleges it will be valuable for anyone following courses which examine the commercial environment. Many companies will be interested in purchasing the series as an aid to staff development and training. But to the general viewer it offers a most interesting and stimulating introduction to the world of marketing.

The complete series of 10 x 30 minutes programmes will be available in June on video for £129 + VAT.
Richard Welford

Unresolved endings

SCHOOL RADIO Let's Make A Story For infants or older children with special needs BBC Radio 4 VHF Fridays, 2.30 pm.

We are continually being told that every primary school teacher should be able to handle some drama teaching as an integral part of the timetable. There are plenty of books to tell us why this should be so, but rather less plentiful is the material on how to tackle the dramatic process. So *Let's Make A Story* should be especially welcome, particularly to

those teachers with enthusiasm but without practical training. What's being offered, via the medium of 10-minute taped programmes, is a surrogate drama teacher, leading the children in role. Or, at least, part of a surrogate drama teacher - the part that thinks up the dramatic ideas, delivers them in role, chooses some really exciting sound effects to be injected at just the right time, and starts priming the children to develop their own ideas.

The "live" teacher is just as important, of course, and will have to use the material according to the needs of specific children, the space they're in and the time allotted to the lesson. The producers suggest that each 10-minute tape could be expanded to fill half an hour's activity, but with the right encouragement, and perhaps some added materials - costumes or props, pictures, slides and so on, the programmes should go a long way. A dip into each reveals plenty of

contrast. Programme two (May 9) is *The Robots*, about the takeover of a village, read by the ubiquitous Paul Copley. Next, *Ghosts in the Classroom*, which takes place conveniently in school; *Adventure on the Beach*, mysterious boats approach children playing at the seaside; then *The Hungry Dragon*, another sea-favoured mystery. The opening ideas from the last, though completely self-contained as a story. Finally, *The Giant Who Loved Pancakes* is read with comic solemnity by Willy Rushton.

Each story will need careful listening in advance. Beneath instructions like "Carry your plate carefully over to the other giants and sit down together", is a wealth of clues about how to structure a good lesson. And of course, each programme closes with the story-telling drama teacher's stock in trade - the unresolved ending.

Nick Baker

Football crazy

CHILDREN'S TELEVISION Josy's Giants BBC1, Wednesdays 5.5pm.

Every so often, and its usually at around this time of year when Cup Final fever is in the air, breakfast television or a programme like *John Craven's Newsround* goes to the other end of the business and reports on the least successful soccer team ever. Nine times out of 10 it turns out to be a boys' club eleven.

Just such a shower as the Glinton Grasshoppers, stars of the BBC's new children's comedy drama series, *Josy's Giants*. Even in scratch games they

regularly go down by at least five-nil. But the Joswell "Josy" Blair is persuaded to take them over and things start to change. For not only does Josy know a thing or two about soccer (he played once for Newcastle United), he shares the late Bill Shankly's view that it is all much more serious than life and death.

No longer do the lads turn up for training swathed in body-warmers and wearing personal stereos. Josy institutes a new regime of discipline and punctuality, puts his team into a cut-down version of the Newcastle strip and optimistically rechristens them the Giants.

But although he is indisputably "Boss" on Saturday mornings, even Josy has his failings. He runs a sports shop, and inevitably it is going to the dogs. In a desperate effort to save the situation, Josy turns - equally inevitably - to the geese.

Written by television darts commentator Sid Waddell, the series has no

qualms about exploiting that and indeed virtually every other sporting cliché. Nor should it have, television sport taken itself too seriously for far too long. Going for a bull, however, Sid Waddell claims that it is all based on fact and that his own son Daniel still plays for a Saturday League club not wholly dissimilar to the Giants.

Will the Giants make it into the big time, though? Will their new "Boss" take them to Wembley? No one is saying, least of all Josy Blair. And that's the biggest fault of the series. As every viewer of *Football Focus* knows, the real job of a manager is to get out there and tell the sports presenters that he's over the moon and that his lads are just raring to go. Come on the Giants!

Book, same title, is available in hardback (BBC Publishing £5.95) and paperback (BBC/Knight Books £3.50)

David Housdon

CHILDREN'S TELEVISION The Bizz ITV, Fridays 4.50pm. The Chart Show Channel 4, Fridays 5.30pm

Even before *The Chart Show* there was no shortage of pop videos on television. The visual equivalent of chewing gum or Muzak, they cropped up in *The Tube* and provided some alternative to cartoons on the Saturday morning children's shows; they constituted the essential difference between today's *Top of the Pops* and the *Ready, Steady, Go* of two decades ago. Now they have a home of their own.

The Chart Show is exactly what its name suggests. Designed to be up-to-the-minute - each programme is put together less than three hours before transmission - it runs down the specialist charts covering Heavy Metal, Disco High NRG and Reggae as well as the more familiar Network Singles. Head-bangers and break-dancers will watch it for these; the wider, more general audience will love or loathe it for the videos.

There is literally nothing else in the programme. No presenter, no studio set, not so much as a voice-over. Everything comes up on the screen. Captions are superimposed over the already-tricky, computer-coloured, jagged and flickering video "promos". Even with the sound turned down it makes for a frenzied 45 minutes!

Pop goes the chart scene

Hugh David watches and listens to a new generation of pop video shows

briefings radio & tv

For schools

DOCUMENTARY RE-RUN (Monday, 10.38 ITV) What is the American idea of success? Jonathan Dimbleby looks at Silicon Valley, the Madison Avenue advertising headquarters of the process surrounding young Americans.

THE FRENCH PROGRAMME (Monday, 11.39 ITV) The first of the series 'Realités françaises' takes sixth form students into a restaurant owned and run by women.

ADVANCED LEVEL STUDIES: HISTORY (Monday, 11.40 BBC2) A short series aimed to help students use documentary sources. Here several experts on the Tudor period show how they use documentary evidence to interpret 'The Pilgrimage of Grace'.

HALLO WIE GEHT'S? (Monday-Friday, 00.30 VHF4) Short modules of actuality German give third year pupils information on every day life in Germany today.

GERMAN II, GRADED OBJECTIVES (Monday-Friday, 01.00 VHF4) A resource of listening material for use at levels 2 and 3. The programmes are based on existing Graded Objectives schemes but can be used in more traditional courses.

WATCH (Tuesday, 11.00, Wed 14.00 BBC2) The rest of the team features a presentation of Roman civilization for six to eight-year-olds.

viewing. At the Channel 4 preview a combination of those aggressive visuals and multi-speaker sound at shatteringly high volume pushed even experienced pop people near hysteria. What we needed was an induction course - something like that provided by a new Thames children's series. *The Bizz* is an attempt to capitalize on younger teenagers' interest in pop, and pop videos in particular. To do so it necessarily adopts something of the gimmickery of the form but its heart is in the right place.

The core of each programme is a film report on the making of one particular video. But unlike film reports in most children's programmes, these are all but made by children themselves. A couple of teenage pop fans provide all the commentary and even interview the video makers.

In all part of the programme's determination not to patronize its audience, Capital Radio disc jockey Kelly Temple who makes an auspicious television debut as co-presenter of *The Bizz*, realizes that that would be fatal. "The 12 to 16-year-olds we're aiming at are very knowledgeable about the pop industry," he says. "They really don't need us telling them who Duran Duran are, and where Arcadia fit in. They'll only watch if we can tell them something new. And that *The Bizz* undoubtedly does - even if it leaves the rest of us who have never so much as heard of Arcadia far behind in the process."

ADVANCED LEVEL STUDIES: BIOLOGY (Tuesday 11.39, Fri 13.38 BBC2) Short series of common core topics for A-level. Here 'Cell Biology' examines the biochemistry of certain cells in terms of the form and functions of the organelles.

FINDING OUT (Wednesday, 9.47 ITV) A three-part unit about Denmark locates the country geographically for seven to nine-year-olds.

(Friday, 14.30 BBC2) Aimed at 14 to 17-year-olds, 'Drama Skills' first tackles the problems of 'The first of the series' 'Realités françaises' takes sixth form students into a play about mentally handicapped people!

LISTENI (Friday, 14.40 VHF4) Upper primary and lower secondary pupils are invited to join in the development of an adventure story. Each week their contributions are featured in a five-minute round-up.

Continuing education GET BY IN SPANISH (Sunday, 17.30 VHF4) A short series to give the holidaymaker or businessperson a taste of the language.

OUR OLDEST ALLY (Sunday, 21.00 R4) Robert Graham looks at the way Portugal has developed over the last 25 years.

For young people

ACTION SPECIAL (Monday-Friday, 19.30 R1) Lofty of 'EastEnders' joins Janice Long to give a week's advice on options after O level and CSE - to stay at school or to leave - to get work or do a Youth Training Scheme.

4 Titles Available For Recording From Sunday 11 May 1986

Approximate Transmission Times.

Monday 11 May	Tuesday 12 May	Wednesday 13 May	Thursday 14 May	Friday 15 May
10.00pm The Pocket Money Programme For Code B	10.00pm The Pocket Money Programme For Code B	10.00pm The Pocket Money Programme For Code B	10.00pm The Pocket Money Programme For Code B	10.00pm The Pocket Money Programme For Code B
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Sculpture, painting and pottery are creating a fresh awareness of the world for blind and visually handicapped further education students at the Royal National College for the Blind in Hereford. The work is a major break with the tradition of supposedly useful crafts, such as knitting and basketwork, which is all those with little or no sight could expect to be taught until recent years.

Introduction of the GCSE will bring recognition and space for additional advance in the field, as John Everett, head of the college's art department, explained: "It will be the first examination to take account of the sense of touch, so it is welcome here."

This is particularly important for him because few of his students have had any chance to do creative art work before arriving at the college. Consequently, there are gaps in their experience.

Some would have picked up on the way, but of them cannot understand and delay. To give the courses status and meaning, they are directed towards O levels, but, as John Everett freely admits, to attempt that in one year is unrealistic.

The difficulty has not prevented several students going on to art college and at least one is now earning a living as a painter.

One of the gains for these students is that they have no preconceived ideas about art. So their work is original, ambitious and often stunningly successful.

In particular, there is a sensitivity and clarity about the sculpture and pottery springing from observation that is done almost entirely by touch. A figure of a dog modelled in this way reflects the underlying structure of muscle and bone clearly. There is one head pared away almost to the skull. Another, made by a partially sighted student, combines the clarity of a drawing with all the sensuality of flesh.

The students also learn the pleasure of texture through weaving. There is a photographic darkroom for those who want to experiment with film. There are hopes of introducing computer graphics in the near future as a possible stepping stone into work that is both remunerative and rewarding in its own right.

For John Everett, who had no previous experience of teaching the visually handicapped when he started the department eight years ago, there was an unexpected difficulty. He said: "I was surprised by how much sight people with low vision have. Some adopt 'blindness' as an attitude."

To break through that, he starts students by asking them to make larger pots, then to model heads. This reveals their abilities and gives him a good idea how much they can see. "Cinical records are no help because, in terms of everyday reality, they are meaningless."

One student, released from self-imposed limitations by the pleasure of what he was doing, finally admitted: "I'm never going to say 'I am blind' again." Talking to his fellow students and looking at their work, it is obvious he is not alone in discovering both a fresh pleasure and a new vision.

For John Everett and his colleague Vicki Murray, such discoveries provide the motivation to go on with this pioneering work.

Owen Surridge

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Of micros and maths

continued

these aims. For instance, information technology is part of the core for the CPVE and is an essential part of every TVEI scheme with which I am familiar. Indeed, in some people's minds TVEI and computers have become synonymous. Surprisingly, the GCSE criteria refer specifically to calculators but make no mention of the micro. The criteria do specify that any scheme of assessment will

"... have regard to the need for examination tasks to relate, where appropriate, to the use of mathematics in everyday situations."

And computers are increasingly a vital part of everyday situations! Although the National Criteria do not refer to micros as mentioned above, from 1991 two assessment objectives can only be realized by assessing work carried out by candidates in addition to time written examinations. These are

"... respond orally to questions about mathematics, discuss mathematical ideas and carry out mental calculations" (3.16);

"... carry out practical and investigative work, and undertake extended pieces of work" (3.17).

The computer is going to be an invaluable tool in achieving these objectives and no longer can it be said that the syllabus inhibits the use of the computer. I will briefly indicate below the way in which the micro can contribute in this area that is causing so much concern and anxiety to so many teachers.

Several programs have already been written to simulate mathematical discussion. These include Maths Talk, Glass and Halving. Additionally, supplementary materials such as an audio cassette and a tape-slide pack are supplied in the Primary INSET pack to assist in the training of teachers for this important aspect of mathematical development. The extent to which young children discuss mathematical ideas when using the language Logo has been frequently documented. *Logo* is a

"At all stages and especially in the early stages of mathematical development, discussion of the child's work is more important than the drawing of graphs."

The microcomputer is unrivalled in its ability to display quickly charts which can be amended at the touch of a button and respond to the question "What happens if...?" Software such as *Euroka* or any graph-plotting pro-



gram can be used to this end, as well as many other types of program. It is vital that the computer is not used to substitute practical activities that would be better done using concrete materials. However, it can be used very effectively to support practical activities; for example, information gathered relating to a survey or derived from a topic in another area of the curriculum which could be incorporated into a database. This would enable the data to be examined in depth, displayed graphically and its implications discussed.

The computer can also be used to stimulate practical work. An item of software that I have used recently, which fits very well into this category, and can be used in primary (top-juniors) or secondary schools is "Cars in motion". I was personally very impressed with this program which is a simulation for Grand Prix racing. Each group of children must adjust their own car to best suit, using their own judgement, the circuit on which they will be racing and flexible practice and strategies. The program generates mathematical work away from the classroom involving estimation, measurement, percentages, multiplication, division, simple geometry, scale drawings, strategy, and the use of planning and logical thinking. The computer has only been used for a small proportion of the working time, but without it the pupils could not have tested and revised their strategies.

There are two other aspects to the above program which are likely to become increasingly important. It entails an extended piece of work and is suitable for being expanded to cover

cross-curricular activities. These could include history, roads, transport, fuel, and energy. This approach has been associated with good primary practice but has been little used in the secondary sector. However, I would suggest that the situation is changing. Both the CPVE and TVEI involve cross-curricular or modular approaches. For the CPVE the core competences are not expected to be studied separately and for the vocational studies:

"A modular approach has been adopted as the basis for organizing Vocational Studies. The term 'module' describes a set of experiences and outcomes which may be achieved through a variety of appropriate learning methods. The modules are not necessarily intended to form the basis for discrete units of study..."

There is another type of program which comes into this category. I refer to adventure games which have been used so effectively in primary schools. I am only aware of "L", produced by the ATM, being used in secondary schools. Adventures and simulations such as *Adventure Island*, *Dread Dragon Droom* and *Fletcher's Castle*, have a mathematical content but also the potential for stimulating activities in other areas of the curriculum.

We have only just begun to realize the potential for using computers in the mathematics curriculum.

Barry Jones is senior lecturer, Maths and Computing, at Christ Church College, Canterbury. He is a member of the Mathematical Association committee enquiring into the use of the micro in the secondary mathematics curriculum.

What textbooks?

by Francis Kellaway

During last August, *The Bookseller* reported that the Educational Publishers' Council had asked Sir Keith Joseph to make extra funds available to local authorities so that they could buy books appropriate for the new 16-plus examinations. The Council claims that "most existing textbooks will become obsolete when the new examinations are introduced" and that at least £30m will be needed to replace them.

According to another report, the Council has suggested that buying one new textbook at an average price of £4.25 for each of a potential six and half million GCSE candidates would cost £13.7m. (Incidentally 4.95 times £4.25 equals £21.15 million, but why quibble about a few hundred thousand pounds when amounts of this order are involved?)

But need they be involved at all? The figures relate to all subjects, but if the field may be narrowed to a consideration of mathematics textbooks there is a powerful case to be made against the perpetual rewriting of such books, and against linking a book to a particular examination syllabus.

If we genuinely believe that education involves the mental, physical and social developments of the individual, and that mathematics is one of the major influences in a balanced education, surely the attainment of an examination pass should be an insignificant feature of the whole process.

This is not a plea for the abolition of examinations. Some form of documentation of progress and achievement is essential for the self-esteem of the pupil, the satisfaction of prospective employers (or establishments of higher education). Neither is the form of examination, whether it be continuous assessment, personal profile, traditional written papers or whatever, the point at issue. What is open to consideration is the implication that the *raison d'être* for a mathematics course, and its end-product, is the examination, and that textbooks must be correspondingly tailored.

Despite the ferment of the post-war years which has bedevilled the mathematics curriculum, there now exists a general agreement about the array of topics which are appropriate for various age-ranges. There is also a gathering consensus that very different targets should be set for the extremes of the ability-range, and, indeed, for other parts of the spectrum also.

The crux now lies upon decisions about the function of textbooks, and this must be conditioned by an understanding of the aims of mathematical education. Any honest definition ought to include "to get a pass in an examination". If this assertion, and the earlier premise that we know what we want to teach, are accepted by authors and publishers, their books would not be ephemeral things, appearing with

the advent of a fresh examination syllabus and vanishing with the next wave.

A textbook would be created so as to present material considered appropriate for a particular set of ages, aptitudes and abilities. The individual skills of the author need in no way be inhibited. One may prefer a didactic approach, with lengthy expositions, possibly addressed directly to the pupil; others may stress the worked example to illustrate a new concept; others may believe practice through multiple exercise to be preferable, and so on.

Thus the initiative for the production of textbooks is unchanged. So are the opportunities for income and profit. Because books need not be scrapped and replaced whenever fashion changes in an examination syllabus (a larger print run: and consequently lower unit cost) is made possible, and of the ability-range, will sell in greater numbers than hitherto.

But the essential factor is the need to teach mathematics as a subject, as an educative force, and as a significant part of the process of preparing children to make their contribution in an adult world. Young people should be taught to develop their minds, to understand number and spatial relationships, and to be numerate. Their books should be prepared accordingly, and not tied to any examination

Software

Shelling
out

Teaching with a micro
Maths I

Maths II

For BBC, 380Z and 480Z.

£8 each.

Shell Centre for Mathematical Education, University of Nottingham, Nottingham NG7 2RD

These two new packs from the Shell Centre for Mathematical Education contain nine programs very much in the tradition of the *Smile* programs produced by Ronnie Goldstein and his collaborators. They are all sound in conception and implementation (available for BBC, 380Z and 480Z micros) and, on the whole, interesting to use.

Decode is a program about probability which challenges you to break a code and read a secret message. Pupils' discoveries about letter frequencies will help them break the letter substitution used in the program. Even codes in a foreign language become manageable with this approach. *Decode* is an ideal group activity which promotes discussion in a natural way.

As superintendent of police, in *Plod* your job is to police the city with as few policemen as possible. If a policeman stands at a corner, he can look down more than one street but can't see further than one block. You have to find the best locations and to calculate how many policemen are needed for different sizes of city. The program's graphics provide clear and rapid feedback as different strategies are tested.

Salesman tries to encourage pupils to think about the consequences of problem solving by comparing two approaches with the way that a computer tackles the same problem. In what order should a salesman visit 10 towns to keep his journey as short as possible? The program illustrates two

methods of tackling this problem and the class can choose the towns the salesman visits from a list of 48 British towns.

The other two programs in Maths I are less imaginative. *Sines* is a rather dull illustration of the relationship between an angle and its sine and cosine. *Vector* uses vectors to hunt for treasure.

In Maths II we see more of the first class work the Shell Centre has produced on graphical interpretation. *Bottle* tries to make pupils think about the relationship between graphs and events in the real world. Animated graphics show a bottle filling with water while a graph plots the height of the liquid against time. How does the graph change when the bottle changes in shape or size? Can you work out the shape of a bottle when you only have the graph?

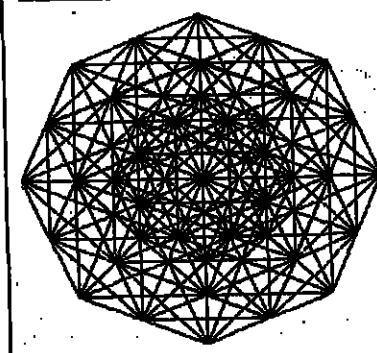
Traffic develops graph interpretation skills by using animated graphics to help pupils' understanding of distance-time graphs, and by challenging them to match graphs with realistic situations. The program begins by asking you to imagine a man in a helicopter who photographs the road below him every second. When his photographs are pinned up in a row, we get a crude distance-time graph of the traffic.

Zoom is an attempt to explore the number line by allowing pupils to zoom in, closer and closer to a hidden number: the bigger the zoom, the more decimal places. It's an interesting idea I have seen explored before in a (better) as yet unpublished program from Bryan Spielman of Santa Software. Spielman's zoom was faster, smoother and more convincing.

Sniffer is a delightful problem solving exercise which encourages systematic investigation. You are challenged to grow the world's tallest sniffer. You have three unlabelled jars containing chemicals which you can add in any quantity to the plant's water. One chemical may be needed in large quantity, for the others the seedling traces too much may kill the plant.

These programs are fantastic value and should be in every school.

Mike Thorne

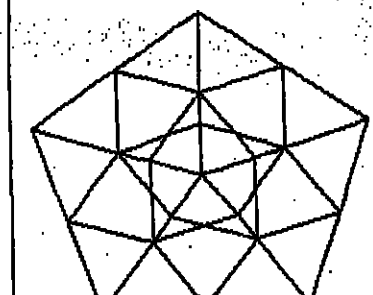
Petals of
polygons

Polytechnix
BBC Micro (disc)
by Bob Hart, Arkenstone Project, 22 Fanshawe Street, Hertford SG14 3AT
Price £12.50 (bulk discounts negotiable)

Polytechnix is a splendid low-cost program enabling pupils to carry out extensive work with polygons. So much work in primary school is restricted by the difficulty and slowness of drawing regular polygons accurately. With *Polytechnix* as a tool instead of paper and pencil quite elaborate and interesting designs can be produced. The program will have its uses both in mathematics and in art lessons.

The basic facility of the program is to enable you to draw a regular polygon of any size. However you can draw lots of polygons and they may be arranged in a systematic or a general way. Further elaboration of the drawings is made possible by facilities for joining the vertices, creating a "petal" of polygons, having "spokes" drawn in and using three colours. The potential avenues for development and investigation are extensive.

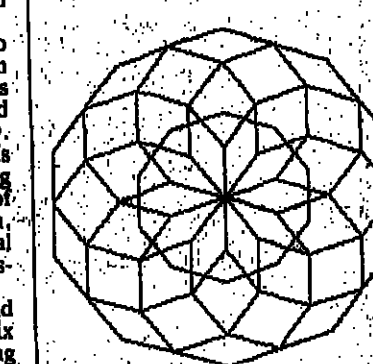
Drawings may be saved on disk and may be printed out on a dot matrix printer. The prompts and other writing surrounding your drawing can be tem-



porarily removed before printing out, thus giving a product free of clutter.

The key components of the program are activated by use of the function keys. The size and location of the polygons is controlled using the arrow keys and a range of other keys. All commands are carried out by pressing a single key rather than by typing a whole word. The operation of the program is indeed simple. Teachers should not find it difficult or time consuming to show pupils how to get started with *Polytechnix*. In fact pupils could show each other the basic keys quite easily. The skills needed for and developed by using the program come in making a design or in following suggestions for a mathematical investigation.

Andrew Rothery



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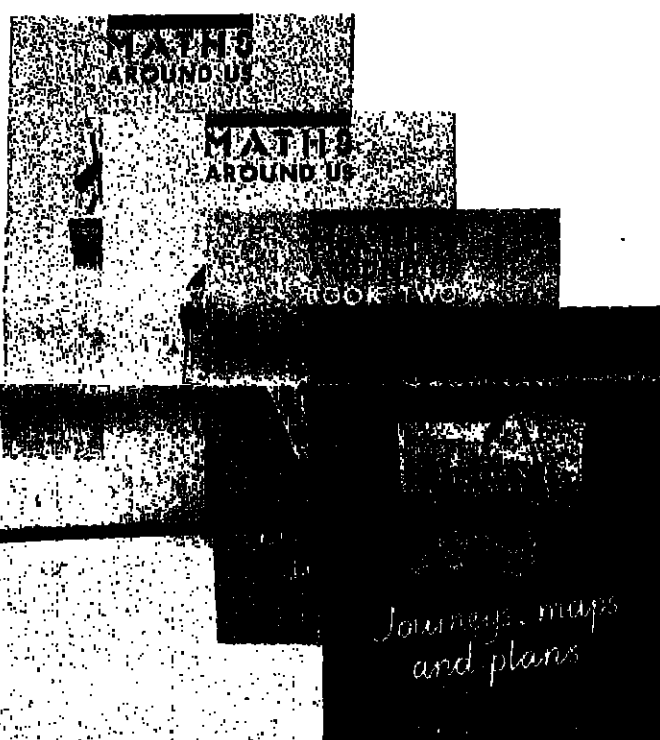
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LEVEL 3	Course-work*		PAPER 2 + PAPER 3	B, C, D, E	Lists 1-3
LEVEL 2	Course-work*		PAPER 1 + PAPER 2	C, D, E, F	Lists 1-2
LEVEL 1	Course-work*	BASIC TESTS +	PAPER 1	E, F, G	List 1

* M.E.I. School-based COURSEWORK (25% of the assessment), consists at each level of:
(i) Three Shorter Set Tasks
(ii) One Extended Task, with oral testing
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to be completed during the first five terms of a 2-year course.
taken the term before the examination.

The main distinguishing features of the MEI scheme, to be offered jointly by MEI and SEG, are: the four levels (offering a gentler grade 'distress'), the Basic Tests at Level 1 (with only one main written paper), the Level 3 (which offers a grade B), and Paper 5 (Extra Mathematics).

A four-level alternative

by Douglas Butler

Long before it became clear that nearly all the GCSE mathematics syllabuses would be settling on three levels of assessment, the MEI (Mathematics in Education and Industry) Project considered that the ability range could be more satisfactorily examined with four levels, together with an extension paper (Extra Mathematics) for the most able candidates. O-level and CSE mathematics were badly in papers that were too hard for them, or they double-entered. Irrespective of coursework and the very laudable new approaches outlined in the National Criteria, a three-level scheme might well be seen as O level, CSE and limited-grade CSE in new clothing, and with double-entering disallowed. In the MEI scheme, the problem is overcome by the third of the four levels (Papers 2 and 3), which is designed to cater for this very important overlap group.

The MEI Scheme's diagram shows the sequence of papers and syllabus lists. The examination questions at all levels will be "structured", so that weaker candidates can make meaningful progress; this is of course an essential feature of any scheme with overlapping papers.

Level 1: Instead of the usual two examination papers, it was felt that candidates limited to the grades E, F and G could be served better by sitting just one formal paper, together with a series of short Basic Tests taken the term before. It is anticipated that the List 1 syllabus should be taught through topics based on everyday situations (for example, travel, shopping), and candidates will sit six 30-minute tests on pre-announced themes, the best four scores being submitted. The Basic Tests have already been successfully trialled this year in the Joint Scheme.

Level 2: This corresponds to CSE grades 1-4, and to the intermediate level in most other GCSE schemes. Candidates can achieve at best a grade C, equivalent to an O level pass.

Level 3: This is possibly unique to the MEI scheme; it offers this range of candidates grades B - E by taking papers that are much more finely tuned to their ability than is possible in a three-level scheme. The consequences of entering for the wrong level are also greatly reduced.

Level 4: This offers the top four grades from a standard of papers equivalent to the O level, though set on a reduced syllabus.

Coursework: school assessed coursework is an integral component of this scheme; although it is anticipated that schools will be developing their own material, a bank of tasks and assessment schemes is being made available for use in the early years while experience in this new area is built up. Calculators are to be available to candidates in all the written papers, but to complement this there will be mental arithmetic tests at all levels, taken and marked in the schools as part of the coursework assessment.

Administration: MEI Mathematics is having a two-year trial as a Joint O level/CSE scheme in 1986 and 1987; it is on the point of being accepted as a GCSE (Mode 2) from 1988, and courses will begin this September. It will be offered jointly by the Southern and the Midland Examining Groups in both June and November of each year, and will be available to all schools throughout England and Wales. The entire scheme (syllabus lists, specimen papers and coursework tasks) was published in the form of the submission to the examining groups in February, as four booklets. They are available from the MEI office, price £5.00.

Teacher support: teachers at participating schools are invited to attend regular area meetings; and an AGM at which the examiners are present. There are area coursework meetings, and an annual conference which this year is devoted to GCSE coursework. In the autumn, a series of Phase 4 regional training sessions is planned for the MEI syllabus. There is a termly Newsletter, and a range of support publications, including a booklet, topic monographs, practice papers at all levels (with marking schemes), and a suite of teaching software.

MEI working groups: this Project

has always run its affairs through committees of full-time teachers. The MEI GCSE itself was developed under the chairmanship of Elizabeth Roebuck, through the GCSE Committee and a number of day conferences at Millfield, attended by both teachers and examiners. Five new working groups are now considering the future progress of the Project - a revision of the GCSE scheme for 1991, the continuing development of coursework assessment, and the following new examinations: Additional Mathematics (from 1989), Extra Statistics (from 1989), A/S level (from 1990), and a new A level (from 1990) which will take account of the impact of the changes to 16-plus, and the influence of micro-computers and the rapid advances expected in hand-held graphic and algebraic calculators.

Industry: MEI stands for "Mathematics in Education and Industry", and this new examination is proving to be a useful opportunity to re-emphasize the relevance of mathematics to the needs of further education and industry - the principle that lay behind the Project's founding in the early 1960s. Industrial input is now in the hands of a number of advisers in industry and a further "Industry" working group; they are collecting mathematics and data from industry which will form the basis of coursework tasks and examination questions. This material will also be fed into the new national database for schools (NERIS) which will be accessed by the modems currently being installed in schools by the DTI.

Details of membership of the MEI Project, the GCSE scheme, associated publications, and the 1986 Conference (July 21-23, Oxford), may be obtained by contacting: The MEI Office, 41s West Street, Oundle, Peterborough PE8 4EJ.

Douglas Butler is head of mathematics at Oundle School, and chairman of the MEI Schools Project Standing Committee.

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The sum of its parts

Co-ordinating mathematics in the primary school by Don Skilling

A mathematics co-ordinator's special task is to aid the staff of a school to become more effective teachers of mathematics. He or she will need to provide guidance, informed opinion and, most of all, enthusiasm. One of the ways this may be achieved in some schools is by co-ordinating the resources. In order to do this efficiently the co-ordinator needs to know the equipment in the school, to ensure that it is suitable and available in sufficient quantity, and that it is easily accessible.

The organization, not only of resources but also of activities, is for the purpose of the education of the children and specifically their mathematical education. The situation in the school will be an important factor in determining this organization.

The more clearly the purpose of any activity is understood and the more precisely the aims and objectives are stated, the more likely it is that the organization and activities that follow will match these goals and contribute to their attainment. For this reason it is important that the staff of the school should work together to agree upon two fundamental areas of professional knowledge:

● The content of the mathematics curriculum, including the reasons for choosing this content;
● The methods that will be used to present this to the children.

Our aim should be towards well organized and thorough teaching throughout the school. The content is well presented in *Mathematics Counts*. However, it is valuable to keep in mind that although the order given presents facts and skills as the first elements, these cannot be used in real life if the child does not recognize the situation where they are appropriate. Rapid recognition of the relationships in a situation and the correct use of facts and skills comes with true understanding. This is the conceptual development we are seeking.

It is therefore absolutely vital that children gain mathematical concepts from real situations. It is a part of the teacher's professional skill to structure these situations as clearly as possible so as to reveal the fundamental mathematical relationships that are to be learned. A wide variety of rich experiences are needed by children to gain any conceptual understanding, for a concept is a generalization abstracted from a variety of related experiences. The following points should be considered when discussing mathematics teaching and learning in a school:

a The children must engage in practical activities and use concrete materials;
b The activities and materials must be structured in such a way as to embody the concept in a meaningful manner;
c There must be variety in the experiences.

d There must be discussion with and between the children about the situations and relationships. Without this dialogue much of the potential value of the experience is lost.

e There must be recording of the situation, together with experience of explaining the meaning of the recording and also making a concrete representation from a record.

Assessment
The primary purpose of assessment is to ensure that children are getting an appropriate and planned education. Education has been well described as the influence of one mind upon another. This appears to me to be the key to sound assessment for it implies the judgement of an experienced teacher.



What do we mean by judgement? Certainly not the superficial opinion which may be given after looking at a set of test scores but a decision made after considering very carefully just what a child can do and talk about with understanding. We need to know what the child thinks about in a mathematical situation and to analyse the process of that thinking. These two elements are vital for the teacher to discover. In order to seek out what children are thinking about, and how they are thinking we need to talk with them, to watch and listen. There is no other way.

A child who is developing mathematical awareness and ability will be able to ask questions that help to reveal the relationships in a situation. Children are guided to learn the helpful questions by going through the process with an experienced teacher. This is a part of the teacher's art for it is not his task to think and act for the children but to guide them to think and act for themselves.

When talking generally, in literature and especially in poetry, the ambiguity of language is a valuable resource.

However, when learning mathematics the ambiguity which is such a rich source of imagery and association leads to misunderstanding and the formation of misconceptions. Discussion and observation of the child's actual process of working make these areas of confusion apparent.

Facts and skills are made useful when there is some conceptual development which reveals relationships within a situation. We should not expect primary school children to recognize the relationships immediately they are presented, so there has to be patience and also time available for the child to consider the information that is given and look for clues to make connections. A few carefully chosen questions may aid this development.

Questioning
Many teachers consider that they are using questioning skills effectively in their teaching, but observation of interaction between the teacher and pupils tends to show some weaknesses, which include:

- Children frequently give one-word answers to questions.
- Teachers accept these as sufficient. Of course children are often given questions to which one word answers are the only acceptable kind. Valuable as these may be in checking factual knowledge they do not allow insight into any processes of thinking that may have been acquired.
- Children are expected to answer immediately or within a few seconds of the question being asked.
- When children do spend time thinking out an answer the teacher sometimes interrupts this splendid process by giving hints, or allows other children (sometimes less thoughtful) to answer, implying that little value is placed upon thoughtful reflection.

Questions are made up during a lesson; this is an essential part of the teacher's skill, but questions should also be a part of the normal preparation. These questions should be carefully directed towards an education or drawing out from the child what they already know, as an encouragement to them to think about the subject and reflect upon what they know and do not know about it. Questions can also stimulate an interest in the subject and a desire to investigate it.

Solving problems
When a problem is presented to us in our daily lives, in order to resolve it efficiently we try to define it, consciously or unconsciously, so that we may understand it and make a judgement that will enable a resolution. The most direct method of doing this is to pose a series of questions, the answers to which illuminate the problem and its situation. By representing a problem

The sum of its parts continued

in different ways - in a diagram, a flow chart, a logical decision tree, with a construction or analogical picture - we can hold the elements of the problem and consider the relationships. Sometimes this is all that is necessary to find a resolution.

Mathematics is useful to us because it is a tool for solving problems and a way of telling other people about the results and presenting a general procedure for solving that kind of problem.

Solving problems is a life skill. It is something we have to do all the time, but in mathematics sometimes we are able to formalize this skill and set out procedures that are useful to us with problems that arise frequently.

We should distinguish between formal exercises requiring a recognition and application of a formula, and other kinds of problem-solving. The formal exercises given in many textbooks for practice may have a very limited problem-solving content. They are designed to develop familiarity with situations where a formula may usefully be applied, for example, after practical work and discussion about volume, some exercises may be given to reinforce the procedures for calculating the volume of containers.

Some problems are presented as descriptions of situations. The information that is given has to be sorted out to match with a process that is already known. The verbal content is padded with information that has to be sorted by the child in order to find the essential facts, for example: *Tom is eight years old; on Tuesday he ran 50 metres in 17 seconds. His brother Jim is two years older and took two seconds less to run the same distance. How long did it take Jim to run the 50 metres?*

These exercises do have a purpose. However, if we are to teach problem-solving as a life skill then we have to teach the process that can be used to give children experience of finding their own resolution to a problem.

Computation
For many decades children have been taught quite sophisticated methods of computation. An example of this is the process that is commonly taught for 'long division'. It is also a prime example of rote-learning without even an attempt at teaching understanding in some cases.

Much of the computation used in everyday life is quite simple; but the processes so painfully learned are often abandoned when understanding comes. Then people use their own personal methods and processes. Even in simple computation we find that the processes learned and sometimes drilled in at the expense of a true mathematical education are abandoned by the child who has found their own way. If you doubt this, ask a group of friendly adults to take 27 away from 43, and when they have done so ask them to explain how they did it - the process.

The history of mathematics is littered with abandoned and obsolete processes. We would do well to consider just which processes, that make such an inordinate demand upon teaching time, are now obsolete.

Before we abandon anything that has been a major part of the curriculum for many years we should first ensure that we are replacing it with something of value.

Recently I went into a primary school classroom and on a blackboard in the front of the class was a list of sums which included 5639 divided by 123. Beside the division was a reminder for the children about how to do the operation - a division sign, a multiplication sign, a subtraction sign, and an arrow pointing downwards to bring down the next number. The teacher told me that she was very good at teaching long division and that she enjoyed it. She had enjoyed teaching it since she became a teacher about 25 years ago and could see no reason to change the content of her curriculum, or her methods of teaching.

There are three reasons why this disturbs me. First, we could ask the question: "When do we use calculations like this in our daily lives?" If the answer is "very rarely", then we should be considering the proportion of time that is spent trying to teach this process when there are other important skills to be learned, which are being neglected. If, when working in industry or commerce, such calculations arise frequently then calculators are used.

Secondly, we know that the highly



refined systematic procedures that are taught in the primary school are rarely used for making calculations in daily life because people produce their own personal methods for doing mental arithmetic. In the calculation given above (43-27) you will know that there are many ways to arrive at the answer. Also, if it was an important calculation you would consider the reasonableness of the answer by looking at the relationships that result - checking it over.

Thirdly, the 'emphasis' is upon a particular procedure. This emphasis is one of the roots of error in our mathematics education. Procedures are carried out to solve problems but they are only one step in the process. In everyday situations there are three major phases in solving problems that involve calculations:
a Deciding what 'sums' to do - formulating the problem;
b Carrying out the calculation;
c Making sense of the answer - interpreting the result.

Of the three, the emphasis is on the calculation, and as a result of the present emphasis a child



may say "Please Miss, is it an add?" The calculator has an important place in this process because it can carry out the calculation so efficiently that time becomes available for considering the other two aspects of problem-solving.

Teachers should be encouraged to initiate activities with the children, guide their work, discuss the problems and difficulties with them, and build upon success.

In all this work there are pressures upon teachers from the headteacher, governors, parents, advisers and the DES, as well as from colleagues and the children themselves. Many have differing views about mathematics teaching in school. The best way to avoid conflict is to ensure that the teachers are confident about their work, that they know what they are doing and why, and to show that this is based upon knowledge of the children and their abilities.

The mathematics co-ordinator's duties are demanding because they are so important. Mathematics is one of the keys to understanding of the universe and to the ways that we can work in harmony with it in our technology. In the primary school we can introduce children to this powerful tool and stimulus to the imagination by getting them involved, getting them happy and confident, getting them interested. The co-ordinator's leadership should make a significant contribution towards these aims.

Don Skilling is mathematics adviser for primary schools, London Borough of Waltham Forest.

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First topics

Peak Maths Infant Topic Workbooks: Sorting, Matching, Numbers. Nelson £2.25 per pack of 10. 0 17 421455 3, 421456 1, 421457 X respectively. Peak Plus Books 1, 2. By A Brighthouse, D Goffier, P. Puffin. Nelson. Pupils Books 0 17 421446 4, 7-2. Teacher's books 0 17 421461, 2-6. Bright Ideas for Maths Activities. Compiled by J. Matthews. Scholastic Publications/Ward Lock. £4.95.

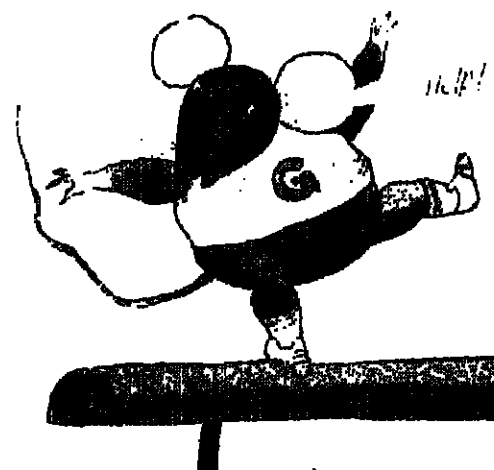
Sorting, Matching and Numbers are mathematically and educationally sound workbooks for infant reception classes. They are easy to use by the child or the teacher, with cross-references to the Infant Handbook. Their cheapness necessitates boring monochrome production, in contrast with the generally good colour-use in Peak pupils' textbooks, but they will make the infant teacher's life easier.

The Peak Plus series is a response to Cockcroft's demands for investigations in primary maths, and will be welcomed by teachers already using the excellent Peak scheme of books and software. The investigations are firmly rooted in the practical, using Cuisenaire rods, base 10 MAB, and geoboards, as well as teacher-produced material. The teacher's books are clear, comprehensive and easy to follow. Books 3 and 4 will be available in July.

Bright Ideas for Maths Activities is a resource book for primary teachers which will be especially useful for those stuck with unimaginative schemes. There is nothing original about it, but it does contain a lot of practical activities, graded into three levels of difficulty. Harassed primary teachers can rely on the book to cut down their work load.

Brian Espiner

On the bar Gert's in trouble.
Every step's another wobble.



Mildred Mouse and her friends go to the gym in *Mildred Mouse (Help your Child to Count series)*, by Richard and Nicky Hales, and Annet Amet. Granada £2.95 each. These attractive little picture books contain a story, activities and games to help parents make maths fun for their children. Other titles include *Pat Cat*, *Porcupine's Pie* and *Wilbur Worm*, from which the picture below is taken.

Diet for mums

Helping Your Child with Maths. By Alan Graham. Fontana £1.95.

A book like Alan Graham's *Help Your Child with Maths* is long overdue. The Cockcroft Report, followed now by the HMI Curriculum Matters No 3, have increased the pressure for change in primary school mathematics. Many schools are now adopting the integrated approach to the subject advocated by these documents, and in even more schools, mathematics is taught in a practical way using an investigative approach. These changes, recommended by educationalists, inspectors

and advisers alike, seems like an unnecessarily long time to percolate through the system to the chalk face. A generally accepted reason for this slow pace is that parental pressure on children to produce pages of correctly completed sums means that teachers find it hard to alter their maths teaching in the direction required. Educate the parents, goes the argument, and you will liberate the teachers.

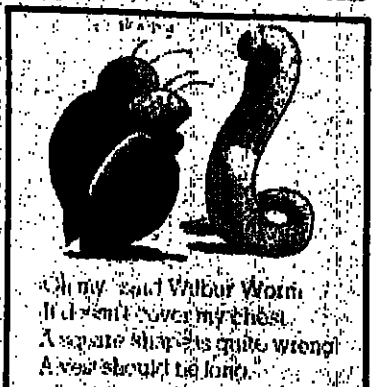
Alan Graham certainly takes this seriously. His book takes us through the traditional primary maths curriculum: early number work, sums, fractions, decimals, percentages, right through to algebra. It treats the well-worn paths using tried and tested images to accompany the familiar illustrations. Although the book is

both thorough and accurate, it does not go far enough in its narrow and old-fashioned view of the primary maths curriculum, especially given the recent advisory documents and the fact that so many teachers are broadening the mathematics curriculum to include subjects such as logic, set theory, topology, probability and much greater scope on measures. This stress on "hard arithmetic" can too easily reinforce in parents the idea that maths is worrying or difficult. Does it matter if parents cannot add $\frac{3}{4}$ and $\frac{2}{5}$, or work out 203 as a percentage of 765? Even in the primary school, surely the relevance of such sums would need to be demonstrated.

We are, as teachers, supposed to be preparing ourselves to teach a "post-calculator curriculum". Although the book does emphasize some of the ideas and skills necessary for this - the importance of estimation is stressed and some of the exercises in number work are designed to develop a sense of number patterns - overall it does not encourage a departure from a traditional approach to, and view of, mathematics. Thus it may not encourage parents to be supportive of the more lively, innovative and less traditional maths teaching in many primary schools.

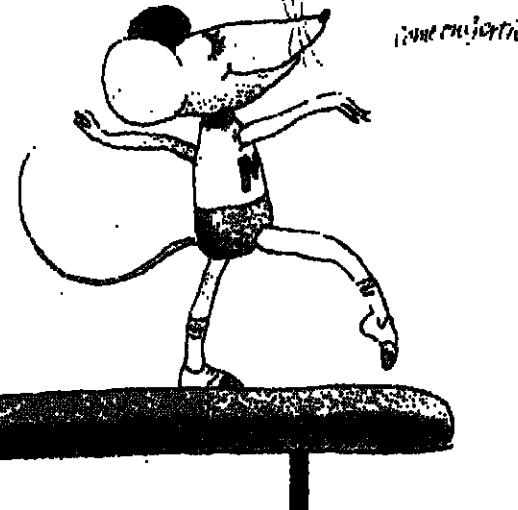
A more important disadvantage of this approach is that Graham, believing as he does that "good old-fashioned arithmetic is still the main course in the maths diet" offered by most primary schools" (page 70), leaves us with the strong impression that maths can be equated with sums. It is this mathematical conservatism which detracts from the radical and laudable ideal of educating the parents. It is a pity that the diet for mums still has to be sums.

Ruth Merttens



Cluny and Wilbur Worm. It's a bit of a mystery why a worm should be doing this.

How many mice are there?
Which mouse is fat?



Scottish target

O & B Foundation Maths Books 1 to 3.

By John B Brown. Oliver & Boyd. Pupil's Book £2.65. 0 05 03701 3. Workbook 1 80p. 03707 2. Teacher's Guide 1 £2.10. 03713 7. Pupil's Book 2 £2.85. 03702 1. Workbook 2 £1.00. 03708 0. Teacher's Guide 2 £3.25. 03937 7. Pupil's Book 3 £2.90. 03703 X. Workbook 3 £1.20. 03709 9.

Practice in Basic Maths Books 1 to 3. By David Lamb. Collins £1.95 each. 0032025 7, 32026 5, 32027 3.

However painful and protracted the gestation of GCSE proves to be, and the experience of the introduction of the new Standard Grade exams in Scotland offers a depressing precedent. It is still true to say that in mathematics the GCSE offers the best chance of remedying some of the ills so eloquently set out in the Cockcroft report.

Critics will point to opportunities lost, cynics will pretend that GCSE will be the old papers with new titles, but the optimists among us can see the chance of a substantial advance towards public awakening to the facts of the differing rates at which children learn, the different levels of attainment which must be expected of children of a given age and above all the need for children to be suitably challenged yet successful at their own level.

Equally, both the new Scottish scheme and the GCSE represent a definite beginning on the road away from content-based curricula towards an emphasis on the process of doing mathematics. In the words of the Scottish Examinations Board:

the essential aim of mathematical education is to help pupils to learn how to describe, tackle and ultimately solve problems which require the use of mathematical knowledge and techniques... the main approach to teaching and learning should be firmly based on problem solving.

Problem-solving processes are identified in terms of five domains of interpretation and communication. Selecting strategies, Processing data, Problem solving and Practical investigations. All this presents a major challenge - and opportunity - for authors and publishers. Will they respond with the old material in new jackets, or will teachers be able to draw on resources fit to match the new directions?

O & B Foundation Maths is targeted at the lowest of the three Scottish Standard grade levels. It provides, for the final two years to certification, pupil textbooks, workbooks and teachers' guides for a complete course, including built-in continuous assessment. To date, three fifths of the course is available, and in outline, the treatment sounds interesting and different. Eight "themes": television, sport, music, family, home, travel, money, food, give the basic structure and the maths is "found" within each and the problem-solving carried out in

a series of Assignments in a disposable workbook.

Mr Brown has made a commendable attempt to provide a complete package for teachers faced with the demands of new attitudes and approaches. The textbooks have a lot of excellent colour photographs and drawings and a great deal of thought has been put into making the work relevant and interesting. But how are these books to be used in class? How can they be used to give the variety of experiences recommended by Cockcroft and the opportunities for working together and showing initiative required by the SEB? One immediate problem is: who does the teaching? So much is said in print, so much is organized in advance that initiative for teacher or pupils seems stifled. The danger with this series is that pupils will follow the chapters individually at their own pace - and the drill and practice of yesterday will be much the same, though re-ordered into "contents" and adorned with colour photos. Exploring new ideas, developing, understanding, posing their own problems, carrying out real practical work: all these we need the teacher to oversee Mr Brown. As a resource these materials have much to offer, but please, don't treat them as a whole course.

In contrast *Practice in Basic Maths* aimed at 11 to 14-year-olds, as a resource, providing basic practice and consolidation material. The series is "designed for pupils who would normally experience difficulty in mathematics" (as in itself a description which sits well with GCSE objectives of assessing positive achievement), stressing what pupils can do rather than what they cannot and provides three books of 60 one-page exercises on assorted maths topics - mainly numerical, with a lot of "roulé" sums. How does this series fit the post-Cockcroft classroom? Given that the teacher will need to provide the explanation and develop the understanding this collection seems to me unlikely to supply suitable practice or consolidation. The level of difficulty is immensely variable and the examples totally ungraded.

Unless used with great care "experiencing difficulty" could easily become the norm. The author's intention concerning calculators is not at all clear, and the impression given is that despite a worthy attempt to dress up the sums in recognizable contexts, a diet of drill is felt necessary. There is no scope for interpretation, selecting strategies, solving problems - this is the old material, in much the same old fashion.

Peter Moody

Clear text and red facts

Blackwell Maths 5. By Riddington and Grier. Basil Blackwell £4.95.

This book is the last in a series of five texts aimed at the middle of the ability range. The preface defines these as those pupils who at present follow a course of study with CSE as the final examination. The book is divided into three sections: chapters 1-6 cover ground not included in volumes 1-4; chapters 7-14 are revision chapters of work covered in volumes 1-4; chapter 15 is a collection of examination questions drawn from past papers offered by various CSE examining boards.

The text is clear and red is used to identify facts which have to be learned and for chapter headings. It is unpretentious and traditional in both content and presentation. There is scant reference to the use of calculators and no evidence of any acknowledgement of the problem-solving or investigation approaches to learning as recommended by recent reports.

To those teachers who are already committed to this series, the purchase of this text is probably a must. To others I would suggest that it contains nothing new in either content or approach, other than perhaps 50 pages of past CSE questions from local boards is probably a cheaper method of building a stock of past questions.

Peter Connah

Developing children's imagery

by Wendy Garrard

Our main purpose when teaching is to provide an education adapted as far as possible to the needs and demands of our pupils and to interest and stimulate as many of them as possible. In order to do this we need to be constantly examining our teaching methods and deepening our understanding of children's knowledge.

A major element in the learning process is the development of imagery. All too often the innate ability to visualize and generate stored images remains dormant purely through lack of awareness and development in the educational environment.

Recent research, although inconclusive, indicates the obvious differences between individuals in terms of their ability to form images and translate knowledge and understanding through images. Some individuals prefer to perceive experiences as notions in a verbal dimension, that of thoughts through a continuous linear directive, in concern for one element at a time. As a result there is a direction towards a sequential organized approach. It may be said that this person adopts a convergent approach in which he or she is quite happy to tackle situations through algorithms and symbolic representations.

Other individuals may adopt a completely visual approach, in which they interpret ideas through the creation of "mind pictures". Information is processed in terms of overall configurations rather than individual elements.

Operations tend to be more creative and result from intuitive expression, and their general approach is much more holistic. This type of person may be said to adopt a divergent approach,

constantly reverting to spatial and visual images. Many people tend to have a mix of these two approaches but others may tend wholly towards one approach or the other.

If we were to analyse many teaching environments, especially the primary classroom, we would see an obvious move towards the adoption of activities catering for the convergent thinker; structured sequential learning tasks, applications of rules and strategies imposed primarily by the teacher.

Language is seen as the predominant means through which the child communicates in all aspects of his or her educational development. This is of great importance, but as teachers we should be aware of the need to develop the other modes of communication especially the artistic and creative aspects. How often do we give real thought to the needs of divergent thinkers, their need to demonstrate their understanding through creative interpretation? Often a child with little skill in terms of verbal expression through the usual channels of communication, will indicate a clear understanding through a variety of creative media.

Although the child may be given the opportunity to express himself through the artistic and creative means, it may go unrecognized. We as teachers must examine children's work and encourage them to discuss it in order to make their thoughts as a result of their visual imagery.

All too often the creative areas of the curriculum are cast aside and treated as of secondary importance. They tend to be slotted into the



"A practical construction. Can you build it?" - children must be encouraged to respond to challenges.

timetable once a week as a token gesture to fulfil curriculum requirements. Teachers should be seriously considering the implications of this action in the light of our children's basic educational development.

All children, more especially those in the primary years, need the opportunities provided by creative activities such as painting, drawing, model making and design. These activities can help to develop a clearer understanding of many mathematical concepts through the development of spatial awareness.

As a teacher of 5 to 9 year-olds I find that mathematics comes alive for the children when they are using mathematical number work can be interpreted through paint, clay, and modelling with any "junk" items. Sticky paper is

particularly useful when representing a wide range of concepts.

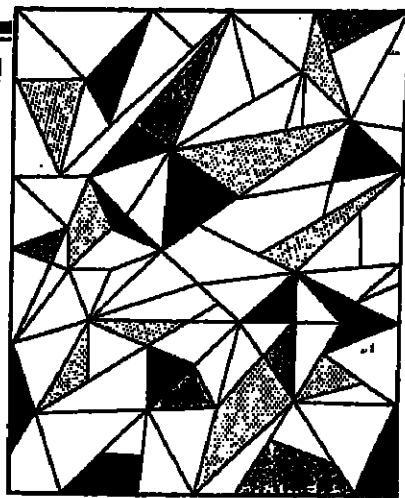
Children are encouraged to investigate and develop problem-solving techniques and as a result need to record their findings. We must therefore offer them a wide range of media through which to do this pencil and paper algorithms are not the only option. For many children a picture may generate a much deeper understanding which will transmit messages which will be stored as mental images for future recall by that particular child.

Logical thought processes may be challenged by use of Optical Illusion activities and Optical Images Transparencies (available from the Leapfrogs group). Another rich source of creative stimulus may come from the use of many of the Leapfrog posters, particularly "The Great Dodecahedron" poster (available from Tarquin, Stadsbrook, Diss).

Many of the "Maze and Puzzle" posters available from LDA and Jonathan Press also generate hours of fun. Two sets of "Visual Thinking" cards are also available from LDA which have served to broaden individual experiences and promote intrigue and fascination resulting in creative responses to related tasks.

Much traditional mathematics is expressed in terms of a static experience. It is vital that children should be exposed to mathematics as related to a constantly changing world. The transformation of elements from one phase to another through patterns and form may be achieved through challenging questions like: "What shadows can be made by turning a cube in front of a light?" "How many different ways can a square be sliced into two halves?" "How many different triangles can be made on a nine pin board?" etc.

The publication of the Cockcroft Report promoted the movement towards a much more practical approach to mathematics. The use of apparatus such as Dienes, Cuisenaire, Multlink and other structured materials, helps which will develop children's imagery, but these activities which will develop children's imagery must be



This optical puzzle ask children to find the star hidden among the designs.

directed. Children must be encouraged to visualize and respond to challenges set which will require them to interpret what they see, and also store the information for future recall.

In order to develop children's imagery various resources may be employed. The use of TV, video and computer graphics are of vital importance. It is imperative that the materials should be used to stimulate imaginative thought and creative interpretation. Some useful films I have used include "Dance Squared", "Matrix" and "Notes on a Triangle". Generating moving images may be successfully achieved by use of MEP computer software and also several of the Smile materials.

All these activities will help to provide opportunities for children to develop valuable images through vivid experiences and therefore help them to form a clearer understanding of the world of mathematics.

"Dance Squared", and "Notes on a Triangle" are available from The Educational Foundation for Visual Arts, George Building, Normal College, Hollyhead Road, Bangor LL57 2TH. coordinator, St. Louis RC Primary School, Newmarket, Suffolk.

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Still they come, swelling the phalanx of books for A level, with a special emphasis on the common core syllabus. Whether the newcomers, however worthy, can supplant some of the earlier works must be problematical.

Texts on pure mathematics by Shepperd and Shepperd which appeared a couple of years ago have, however, been well received and an additional volume is equally deserving of attention. Taken together with the earlier, *Pure Mathematics for Advanced Level*, this further book covers the complete A level course, and also the pure mathematics of the double A level subject.

Revision material, graded worked examples to illuminate new work, and exercises in profusion provide a sturdy path to comprehension and application. There is a welcome stress on the nature of proof, and a more rigorous treatment of such topics as power series, or limits and convergence, than is sometimes found in sixth-form texts.

Complementing this is another book in the same series which deals with all the mechanics and probability which may be expected in most A level syllabuses. Rigour is once again a hallmark, and once again the examples and exercises are noteworthy. It is, incidentally, intriguing to see how standard concepts are given a new twist by updating the context in which the problems are set. Thus relative motion of a plane being decelerated by the arrestor gear on the deck of an aircraft carrier. *Plus ça change!*

F W Kellaway



Chinese merchant using an abacus in San Francisco, 1880.

Algebra with a computer

by Richard Cooper

Few mathematics teachers would be surprised at a comment made in a recent HMSO report: "For many 15-16-year-olds, perhaps the majority, the outcome of their algebraic efforts is disappointing: they have little confidence in applying the algebraic procedure to a problem involving three years or so." Learning how to program computers can improve children's understanding of mathematics, including the concepts of variable and function.

At the University of Warwick, the subject of programming in Logo had on mathematics produced evidence to show that computer usage helped to improve children's general mathematical ability.

In the Nottingham Programming in Mathematics Project, set up to identify whether programming helps the understanding of mathematics at lower secondary school level, the children's work showed a positive improvement after computer usage. This particularly algebraic concepts which the scheme was designed to establish were variables, operations on variables and functions. It was an important feature of this scheme that the pupils should learn to program before doing algebra, so that their first introduction to algebraic notation was as labels of store whose contents may vary, and to operations as instructions to the computer. This gives the concept of a variable a real context in which to develop. A child's manipulation of short programs allows the concepts of variable and function to become clearer as the child interacts with the computer.

Many computer programs found in mathematics classrooms are complex and commercially produced, even when they have been specially written by classroom teachers. Dr David Tall of Warwick University, believes that

use of short (5-10 lines) programs will help to remedy the poor algebraic performance mentioned earlier. He states "The horrors in algebra that occur later on in the school, even in the sixth form, will not be solved by reworking the curriculum at this later stage. When the concepts are first introduced so that children have a meaningful mental picture of what the symbols represent."

Following up these ideas, a small experiment was carried out with a group of 14-year-old girls. They were given a program to solve a quadratic equation:

10 INPUT X
20 LET F=X*X-5*X+1
30 PRINT F
40 GOTO 10

One group of children were able to solve a complicated quadratic equation by trying values for x that would make the result equal to zero. After choosing initial random values, they used the results of their calculations to move towards an answer. They overcame the hurdle of decimals easily and argued with me over what they deemed to be an accurate answer.

They surprised themselves (and me) when different groups found two different solutions to the quadratic equation, and they asked me which group was correct. However, after we all used a graphic package to draw the function the answer became clear. They both were! The participation of the children in the mathematics was considerable. Although their arithmetic and algebraic ability is limited, when freed by the computer from these limitations they were able to achieve success and in doing this they covered far more mathematics than I had thought possible.

This trial and error approach also allows children to study virtually any equation rather than limiting them to the simple linear and quadratic curves. People sometimes object to the use of trial and error in mathematics on the grounds that mathematics is an "exact science". This attitude may derive from a system of mathematical education which stresses the use of analytic methods on a restricted range of problems, and hence discourages an adventurous or speculative approach to new problems. "ATM"

An alternative approach uses the computer's ability to evaluate numeric statements quickly and accurately. In order to judge the effectiveness of a numerical approach I gave the same

group of low ability children various questions of the form $f(x)=0$ to solve. They were also given a small program which printed out the value of the function:

10 INPUT X
20 LET F=X*X-5*X+1
30 PRINT F
40 GOTO 10

One group of children were able to solve a complicated quadratic equation by trying values for x that would make the result equal to zero. After choosing initial random values, they used the results of their calculations to move towards an answer. They overcame the hurdle of decimals easily and argued with me over what they deemed to be an accurate answer.

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course at South Bank Polytechnic, looked at the effects that different notations had on the solution of linear equations. Children were given two sets of equations, one half with x and the other half with y. The results indicated that success is more likely to come using trial and error methods as opposed to a rules-based approach. With this in mind children should use the computer (or a calculator) to develop a numerical approach to solve equations as well as the more traditional methods.

There is a saying that the best way to learn something is to teach it to someone else. As one teaches, one is forced to look at the processes inherent in the subject under discussion. When a child programs the computer, it becomes another pupil that is being "taught" how to carry out mathematics procedures.

A computer program involves knowing what the problem is and developing a method of solution. There does not have to be a unique path; the path can be littered with errors, either due to syntax or to logic, and the overcoming of these errors adds to the learning process. A child who writes a small program, and then amends it himself or herself, develops a positive attitude to error. The child will hopefully realize that when a chosen answer turns out to be wrong, new information is gained, and another line of approach can be considered.

Programming also creates confidence within the child. If computers are to be used within the mathematics classroom it is important that children should feel confident as they use them. Learning to program a computer creates a situation where the child is master of the machine and helps to take away some of the fear and mystique of the computer.

The three reasons for using programming to teach algebra are:

- It enables the learner to concentrate on and to understand the algebraic process.
 - It can increase self-confidence.
 - It provides a reactive process in that children learn by their mistakes.
- The ATM document, Working Notes on Microcomputers in Mathematics, summarized the mathematical reasons for adopting programming within the mathematics lesson. "In content terms, the mathematical concepts of a variable and of iteration can be identified, as can the characteristic mathematical processes of specializing (breaking a problem up into smaller elements) and generalizing (devising procedures or algorithms). There would seem therefore, to be a powerful case for taking programming on board."

B T O'Shea, J A M Howe (1980) *Teaching Mathematics: A Project Study*. Dept of Artificial Intelligence, University of Edinburgh.
2 M Hart (1980) *Computer Programming in The Mathematics Classroom as an Aid to Understanding*. Trent Poly, Nottingham.
3 D Tall (1983) *Introducing Algebra on the Computer*. Mathematics in Schools v.12 n.5.
4 ATM (1981) *Working Notes on Microcomputers in Mathematics Education*.
5 R Cooper (1986) *Teaching Algebra with a Computer*. Polytechnic of the South Bank.

Richard Cooper is at present Head of Mathematics at Purley High School for Girls in the London Borough of Croydon.

For subject, when they can see the point of such a study, and when they understand its value to them in some personal application, whether it is in career terms or whatever.

Obvious indeed, but not necessarily appreciated sufficiently by more erudite pundits. It is a weakness of much abstract research about mathematics teaching that the human aspect is largely neglected. Not so with the Brunel team. They have worked with teachers and some 22,000 students from 10 to 57 years of age; they have considered the whole educational spectrum in terms of age as well as abilities. There is an air of realism about their findings and proposals that is refreshing. One can only repeat the aspiration that they will be considered in depth by teachers and trainers of teachers, in great numbers.

F W Kellaway

Getting the priorities right

David Hill takes an engineer's look at the way mathematics is taught

Mathematics is, to some, a daily activity that is carried out almost without conscious effort, like frying an egg, or riding a bicycle. To others it is something one knows about, appreciates the possibilities of, but doesn't actually do oneself.

For me, after 25 years in mechanical engineering design and development, a field which is generally regarded as being fairly heavily mathematics-based in an applied sort of way, it is both. The various mathematical techniques I have met can be categorized quite firmly into those I do, and have to do fluently, and those I only need to know about.

Most of what I have had to be able to do would be covered by the O level syllabus. To be able to represent physical quantities and events by numbers or lines on graphs, to be able to manipulate simple algebraic equations, to recognize the appropriate formula in a textbook and substitute in it, to have an instinctive feeling for geometric and trigonometric qualities of drawings and artefacts, this is all that has been required for 90 per cent of all the problems I've had to solve. But this has had to be second nature to me.

Then there have been the other things. I've had to know about the plausibility, and have often used dimensionless numbers, but I've never needed to invent one of my own. Nor have I ever, outside the examination room, devised, if that is the word, a transfer matrix, done a Fourier analysis (other than by machine), nor even as far as I can remember, solved a differential equation.

Of course many engineers and scientists use the more advanced techniques. Usually with apparatus, and the course of their job, they find that some particular advanced branch of mathematics is applicable to their

speciality. So they mug up on it and become proficient. Hardly ever does anyone have to become a virtuoso across the whole range of available practice.

Which brings me to the question which has been worrying me for a long time; do educationists realize this? At primary and secondary school level there seems to be a "new maths" revolution every few years, which produces some strange new terminology, and prevents parents from interfering too much with their children's homework. The laudable intention is to give the children "insight" into maths whilst avoiding the possibility of boring them.

I was victim of one of the "new maths" shortly before the war, (something about "what Manchester does today..."). When the war started I arrived at a small country school where the younger children sat and chanted the multiplication tables. It took some doing to hide the fact that I didn't know mine. I still trip up over things like $7 \times 8 = 7$, and I find it irritating to say the least. Constant repetition does help to instil those things which one wants to become instinctive. To avoid alienating pupils, skilful teaching might disguise and make less boring, or even interesting, the amount of repetition they have to do; but it must not seek to eliminate it.

At primary level everyone needs to be able to add and subtract, multiply and divide, with and without a calculator, and without conscious effort. At secondary level the use of graphs, simple equations, geometric relationships should be understood by all, but taught to "second nature" level to those going in for anything scientific, engineering or commercial, even if it does involve a musician's practising of scales. As an outsider to education, I

get the feeling that the educational establishment's admirable rejection of learning by rote may be taken to the degree whereby the repeating of anything until it becomes instinctive is regarded as unacceptable.

In tertiary education, on the other hand, and particularly in engineering, the practice is to expect the student to become expert in all the mathematical techniques used in all the subjects in the course. This wastes an enormous amount of time, and pushes out of the curriculum a lot of stuff which should be in it. It is rather like expecting the conductor of an orchestra to be able to play competently all the instruments in the orchestra. If he learned to do this there would be no time left to study the music.

This approach produces various reactions amongst the engineers (I can't speak for scientists) it trains. A few swallow the whole thing, and use engineering as an excuse to show off their mathematical prowess. Others develop feelings of inadequacy, and reject maths as a silly fairy nonsense. Some students achieve the ability to do the maths, or at least to do the mathematical questions in the exam papers, without gaining any sort of insight into the physical processes described by the maths.

I feel that if educationists would make the same categorization that I have made - teaching to achieve instinctive numeracy at the basic level, and yet encouraging students to regard the fancier stuff as something which need not actually be mastered in intimate detail - then far more students would graduate feeling comfortable with mathematics, and better able to make use of the science.

David Hill is a Chartered Engineer in structural design and has worked with the educational establishment.

Master classes

by Mary Cruickshank

When the Royal Institution launched its first series of Mathematics Masterclasses in January 1981 there was some doubt whether the sixty 12 and 13-year-olds would willingly give up ten consecutive Saturday mornings doing maths. In fact they all attended enthusiastically throughout the course, arriving early for warm-up problem-solving sessions, taking the minimum mid-morning break and at the end eagerly asking for more.

Since then Mathematics Masterclasses have been held every spring and autumn term at the Royal Institution and a second London group for 11-13 year olds only has been set up at the City of London Polytechnic. In addition 11 centres outside London in Birmingham, Cheltenham, Edinburgh, Gwynedd, Hillingdon, Leeds, Manchester, Newcastle, Suffolk, Sussex and Warwick have established their own Masterclasses, under the Royal Institution's guidance and support, and discussions are under way for further groups in Bromley, Southampton and Leicestershire.

The classes are aimed at mathematically able third-year pupils, selected mainly, but not exclusively, from comprehensive schools. Selection is left to teachers in schools who propose names to their local mathematics advisers and in all groups the demand for places has far exceeded the number available. Third-year pupils, unimpeded by formal exams, were thought to be the age-group most likely to benefit from the classes: willing to tackle unfamiliar subjects and uninhibited in their responses.

Topics are chosen from the mainstream of mathematics, explains Professor



Mr Terry Heard assisting at a problem solving session at a Royal Institution Mathematics Masterclass.

possible they are subjects that the children have not already met in school. His own classes at the Royal Institution, for example, include sessions on mechanics, a subject not often taught in schools at this level. Other popular themes deal with aspects of geometry, algebra, numbers and topology.

The emphasis is on understanding, not on giving rules and procedures which, correctly followed, lead to the "right answer". The classes are led by practising mathematicians who communicate their enjoyment of the subject as well as their skills. Each two and a half hour class opens with an introductory talk followed by problem-solving sessions in small groups, when the lecturer is joined by two or three teacher-assistants from the schools involved.

In a number of groups parents and teachers sit in on the sessions and this has played an important part in extending the impact of the classes beyond the confines of the Saturday morning sessions. This is an area that the Royal Institution is particularly anxious to develop. Professor Crank believes there is scope for local teachers' centres to follow up some of the masterclass activities and explore

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Some possible procedures

Diagnosis and Prescription. By Ruth Rees and George Barr.
Harper & Row £6.95. 0 05 318 269 6.

The Mathematics Education Group at Brunel University has a fine record of investigative work in the field of mathematics education. Those acquainted with members of the team will appreciate Professor Furneaux's commendation, in a preface to this level of competence as mathematicians with an understanding of the statistical and methodological aspects of educational research.

It is these qualities which provide a rational basis for their findings, and it

must be hoped that this survey of some misunderstandings and difficulties that arise during the study of mathematics will reach a wide audience of teachers at all levels. For, unless the problems are recognized, there is little hope of raising the standard of numeracy in this country. The authors, on behalf of the Group, suggest some possible procedures and answers. It must be for individual teachers to determine how their own work can be made more effective by an acceptance of some of the ideas so clearly set out in this book. These ideas come under the two major headings of diagnosis and prescription. The former is concerned with identifying a "core of difficulty"

to which common problems in mathematics relate. Topics which may have a place in the core are various. Many may involve only elementary work, as in long division, decimalization, ratio and proportion, or algebraic symbolism. But, state the authors, because the concepts are elementary, they are not trivial. The processes of diagnosis may reveal how and why the difficulties arise. Then it is a matter of prevention or cure. The pointers in this text are invaluable. One factor that might have been given greater attention is that of motivation. Any teacher of experience would accept the obvious and common sense view that learners of all ages do

best when they can see the point of what is said, and when they understand its value to them in some personal application, whether it is in career terms or whatever. Obvious indeed, but not necessarily appreciated sufficiently by more erudite pundits. It is a weakness of much abstract research about mathematics teaching that the human aspect is largely neglected. Not so with the Brunel team. They have worked with teachers and some 22,000 students from 10 to 57 years of age; they have considered the whole educational spectrum in terms of age as well as abilities. There is an air of realism about their findings and proposals that is refreshing. One can only repeat the aspiration that they will be considered in depth by teachers and trainers of teachers, in great numbers.

F W Kellaway

EXTRA

The domino effect

by Donald Eperson

Over 70 years ago, when we had finished a family game of dominoes, I amused myself by using the dominoes as building bricks to make towers and colonnades (Fig 1) or black and white tile patterns (Fig 2) that ignored the numerical values of the dominoes, but gave me some aesthetic satisfaction.

Representation of numbers by patterns of round spots preceded the invention of Hindu, Roman and Arabic numerals by many centuries, one of the earliest known instances appearing in a Chinese manuscript, dated 2200 BC, showing the numbers from 1 to 9 arranged as a Magic Square.

They are still of practical use in infants' schools, and any pastime, such as a game of dominoes, that involves counting, matching, adding and subtracting, is beneficial to a child.

The conventional symmetrical patterns on dominoes and dice, and those for the numbers from 7 to 10 on playing cards, fit neatly into a square or rectangular space, but there are alternatives, such as the Triangular Number patterns for 3 and 6, and the Square pattern for 9 (Fig 3).

Inventing your own number patterns is a fascinating pastime for children. After a lecture on this topic at a college of education, a mature student presented me on the next day with a set of original patterns for 11 that she and her children, aged six and seven years, had devised. Instantly recognizable patterns for 11, 12, 13 can be devised as alternatives to the Jacks, Queens and Kings (Fig 4).

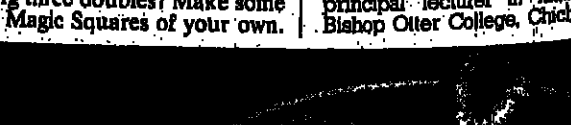
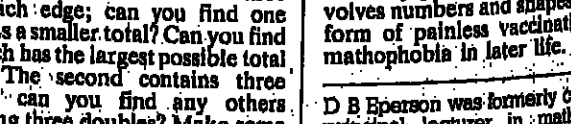
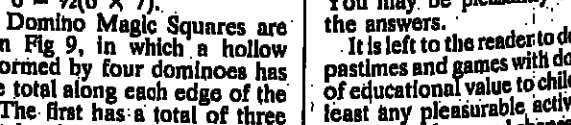
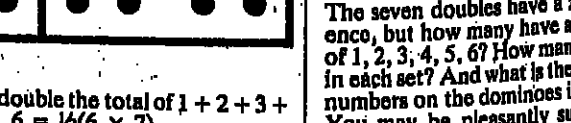
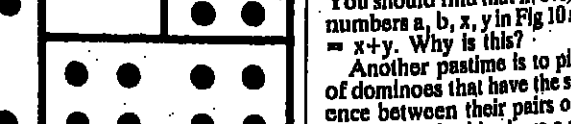
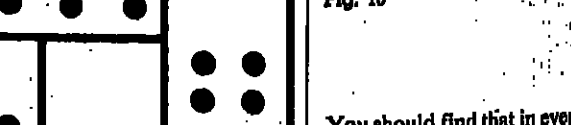
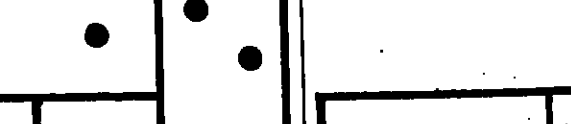
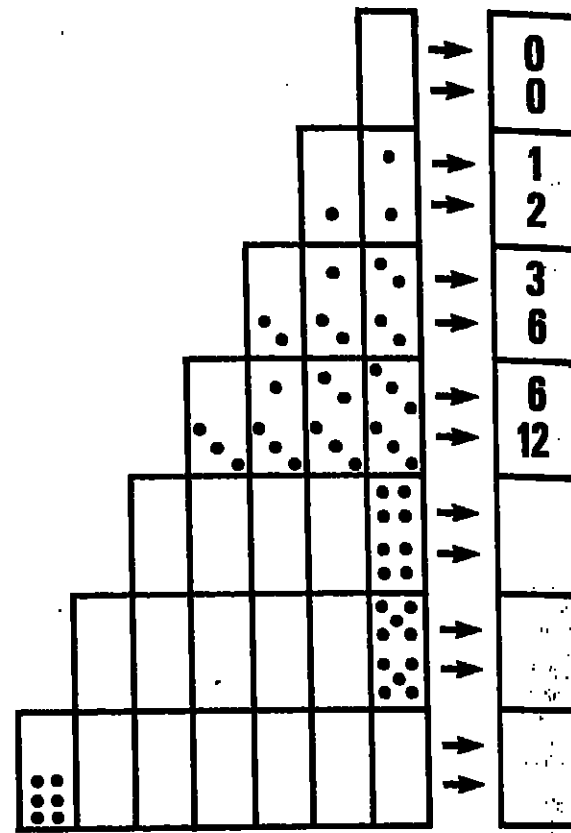
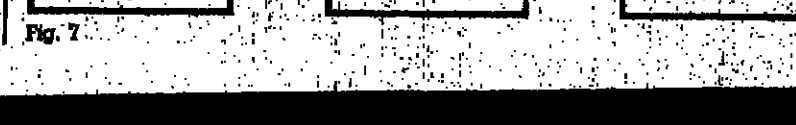
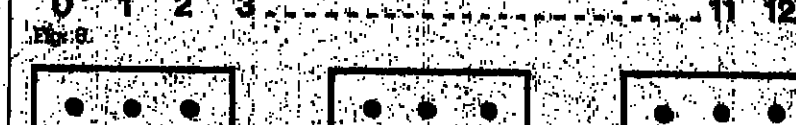
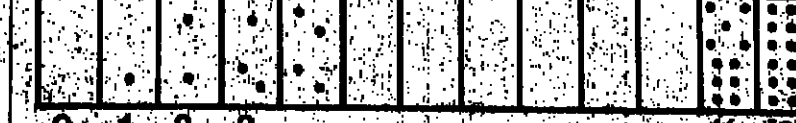
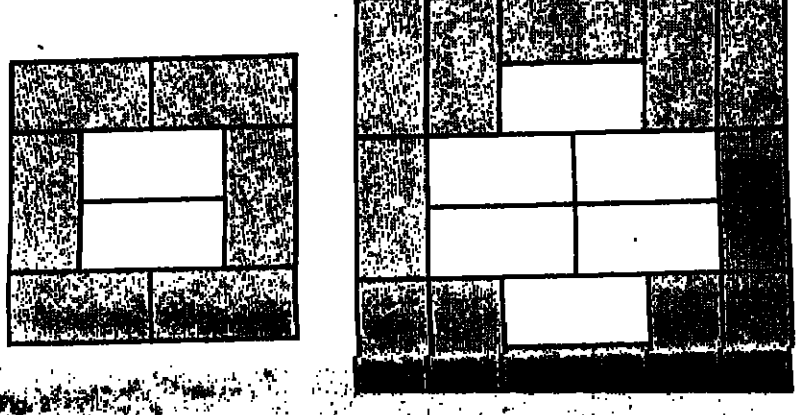
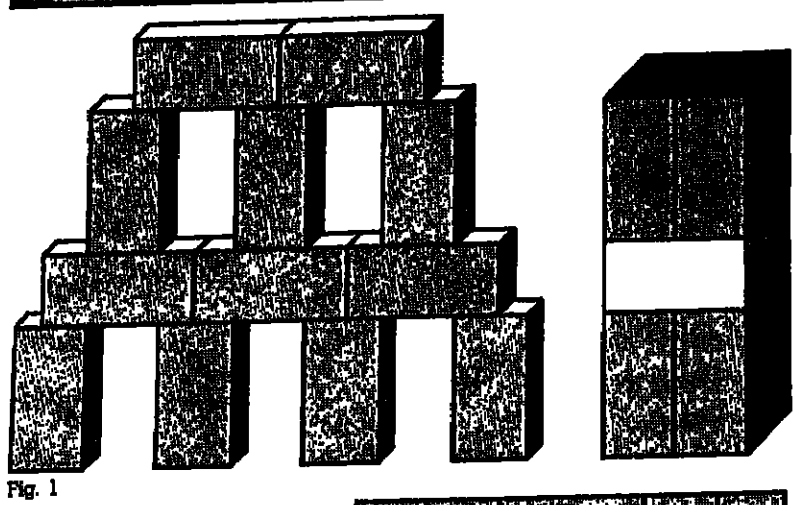
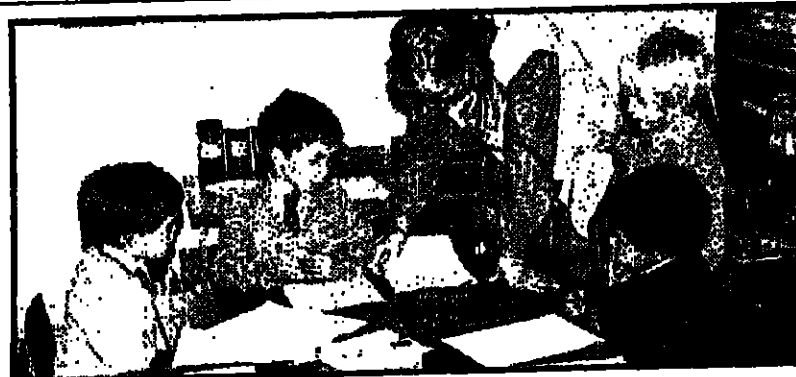
When engaged upon giving courses in "Remedial Mathematics" to students suffering from "mathophobia" whilst training to be teachers in primary schools, and who dreaded the prospect of having to teach a subject that they themselves had difficulty in understanding, I found that dominoes could be used as a visual aid that stimulated their interest.

My aim was to explain the common-sense principles and processes involving numbers, patterns and shapes that form the basis of school arithmetic and geometry, through satisfying and pleasurable activities.

In some domino games the "doubles" are the key pieces, but in others the sum of the pair of numbers on a domino is of importance; for example, those whose sum is 7. But what is the sum that occurs most frequently? The answer can be found by arranging the dominoes in sets, as shown in Fig 5, (which has been left for the reader to complete) each column containing the set of dominoes with the same total from 0 to 12. These form a "column graph", with 13 dominoes in the bottom row; do the number of dominoes in each row form an "Arithmetic progression"?

How many dominoes form a complete set? I have used a much larger set, showing all pairs of numbers from 0 to 9, with the patterns shown in Fig 7. How many are there in this set? How many dominoes are there in the subsets in which the highest number is 3, 4, or 5? The answer to these questions can be seen in Fig 8, which shows row by row the dominoes of which the highest number is 0, 1, 2, 3, etc. By completing the diagram, you will discover that there are five dominoes with 4 as the highest number, six with 5 as the highest number, and generally $(n+1)$ dominoes in which n is the highest number.

Hence the total number of dominoes in a complete set of dominoes is $1+2+3+4+5+6+7+8+9+10$, which is the 10th Triangular number, T_{10} , or $\frac{1}{2}n(n+1)$. This formula can be seen, for example, in the diagram where the right-hand column shows the total number of spots in each row. The bottom contains seven sixes, total 42.



Roles and responsibilities

Bill Bailey reports on a weekend course for teacher advisers

A weekend course for teacher advisers appointed under the Government's Education Support Grants Scheme was organized recently by NORMAC (Northern Region Mathematics Council). The purpose of the course was to provide a forum for discussion and establish a network of support for those based in the north-west. The sessions were coordinated by John Ireland, a former headteacher and adviser with Bury I.C.S. and now based at Liverpool Institute of Higher Education. This article attempts to describe some of the issues raised.

Many teacher advisers suffer initial withdrawal symptoms from the classroom. This coupled with a professional identity crisis leads to questions like, "What am I doing?" and "What do teachers think I am doing?" Course members identified an urgent need for I.C.S.s to transmit to schools who and what they are if successful negotiations about curriculum development are going to take place. It became obvious that some I.C.S.s had failed to do this. Some schools did not even know of the existence of newly appointed teacher advisers, let alone the nature of their job. The teacher advisers also complained of the lack of foresight by I.C.S.s in planning accommodation, supplying resources, providing clerical support and making materials available. Some of those appointed seem to have been put in cupboard under stairs with no job description, no resources and no claim forms!

A clearly defined role is needed if the success of the experiment is to be gauged and the point and purpose of the teacher adviser is to be transmitted to schools. An analysis of responses revealed that one or more of the following roles for the teacher adviser were expected:

- help to draw up and revise schemes of work and policy documents;
- evaluate commercially produced schemes and materials mainly through user groups;
- make contact with schools and work alongside teachers in the classroom;
- set up school working parties;
- coordinate, plan and provide in-service support and workshops;
- encourage and disseminate good practice;
- identify teachers and others who might form an action group, help with local courses, or contribute to working parties set up to produce materials;
- develop a Maths Resource Centre;
- produce a local Maths Newsletter;
- keep in touch with other agencies such as ATM, MA, NORMAC, local colleges and national projects;
- liaise closely with I.C.S. inspectors, advising them on the nature of current practice and future trends, and discuss policy decisions with them.

A paragon of virtue just above that of the Devil? was how John Savin of Manchester Polytechnic described the qualities required. Barry Pinfield of Manchester's Education Development Service took a less divine view in suggesting that the ability to smile was essential. No one denied the teacher's personality as being a major factor in achieving credibility. The following personal attributes were also mentioned: indefatigability, total lack of arrogance, a sense of humour, sensitivity, enthusiasm, energy, flexibility, adaptability and the ability to relate.

The teacher adviser has to be a good listener, sympathetic and supportive enabler who can go into schools, listen and communicate. It is only by the individual's diplomacy that some schools' ill-effects that "we're doing alright" (mainly secondary schools) according to the reports of the course participants can be shattered without destroying relationships or eliciting that abusive phone call from the headteacher to the education office.

There are so many unknown factors in the job that every contingency cannot be catered for by painstaking preparation. In situations like the initial visit to INSET work the teacher adviser has to think on his or her feet whilst managing to maintain at least an appearance of confidence. Learning to justify what was done previously as a teacher, quite naturally and without thinking, is another prerequisite of successful performance in the new role. The ability to relate to different

types of people was soon realized to be an essential quality required of the job. Being realistic enough to spot lip-service, accepting a degree of failure and appreciating that sometimes success might be very short-term have been painful lessons learned by some since their appointment.

Teacher advisers should be aware of mathematics within the curriculum and have an ability to analyse the possibilities for teaching it in the context of schools as a whole. To generate imaginative and innovative ideas they must have knowledge and experience in some of these areas: Cockcroft para 243; curriculum guidelines; early learning experiences; continuity, links and liaison; maths for low attainers; pupils whose attainment is high; role of the coordinator and/or HOD; a variety of materials; use of calculators; use of microcomputers; maths across the curriculum; assessment.

Credibility appears to be achieved initially through the standing of the establishment they have been associated with before appointment or the quality of their own professional achievement. Acceptable qualifications are also required, for example, in schools several teacher advisers had been asked, "You might have been a good teacher but what are your qualifications?" Ultimately, the only way to achieve real credibility is through the effectiveness of the advice and help offered.

The initial contact with schools is absolutely vital. In the early days it appears that it is essential to go into schools which will be supportive if success is to be achieved. The advice of the General Adviser/Inspector was acknowledged as being vital here. The key is of value to a supportive school and where they might need help. Microcomputers and calculators are good examples of these areas of need.

Confidence through contact quickly establishes a credibility and, as the gravevine begins to operate, endorsement of the teacher adviser's activities quickly spreads from school to school. How do teacher advisers cope with headteachers, staff development, modifying teaching approaches, encouraging and implementing innovation? The form of initial contact with a school should be: go in, listen, observe and keep in contact. It may well be that the school needs a breathing space before the teacher adviser comes back. The importance of negotiation between schools and the teacher adviser on what they are going to do and how they are going to operate cannot be overstated. A pattern of initial visits might be:

- meet with the Inspector to receive background information on the school and its requirements;
- meet the headteacher on neutral ground and away from the telephone. Discuss whether he or she wants a full package of curriculum development or just simple recommendations;
- arrange an informal meeting with the staff to gain their confidence;
- spend time in the classrooms working with teachers and children;
- set up a formal meeting with the staff to make and receive recommendations for future action;
- hold a debriefing with the headteacher.

When introducing a new scheme or materials into a school the advice seems to be to work initially in a team of two or three colleagues for two half sessions a week.

It is encouraging to report that the list of successes far outweighed any failures. Some reasons for failure were:

- lack of resources and money;
- inability to overcome the constraint of teacher action especially in relation to INSET;
- a small number of schools had failed to respond even to initial contact or invitation;
- lack of awareness of the ethos of some schools before going into them;
- inability to get around the constraints of the secondary school timetable;
- some felt they had become glorified

- supply teachers;
- inability to meet the demands made on them (for example, courses were over-subscribed);
- headteachers were not supportive in the follow-up.

Some successes were of a more general nature. They had all felt the benefits of personal and professional development, and the opportunity to innovate. "Bypassing purgatory by being able to reveal those skills I always knew I had but was never allowed to reveal", was how one course member summed it up. Many spoke of the exhilaration of that golden moment when a child or teacher said, "great!". Other successes in relation to teachers and the relationship between them and the

- achieving good communications with and support from headteachers, teachers and the inspector;
- meeting people on courses and then visiting them in their classrooms;
- boosting the esteem and stimulating the appointment of coordinators in primary schools;
- getting primary school coordinators to meet together.

In terms of curriculum development the areas of achievement are listed below:

- visits to schools had encouraged teachers to plan ahead;
- producing materials which teachers were using in the classroom;
- the writing of materials with teachers had led to a gelling of relationships;
- stimulating school initiated projects;

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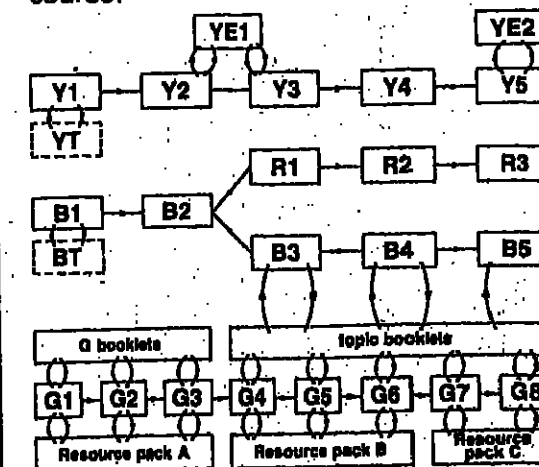
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1905, 1907, 1909, 1911, 1913, 1915, 1917, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, 1935, 1937, 1939, 1941, 1943, 1945, 1947, 1949, 1951, 1953, 1955, 1957, 1959, 1961, 1963, 1965, 1967, 1969, 1971, 1973, 1975, 1977, 1979, 1981, 1983, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045, 2047, 2049, 2051, 2053, 2055, 2057, 2059, 2061, 2063, 2065, 2067, 2069, 2071, 2073, 2075, 2077, 2079, 2081, 2083, 2085, 2087, 2089, 2091, 2093, 2095, 2097, 2099, 2101, 2103, 2105, 2107, 2109, 2111, 2113, 2115, 2117, 2119, 2121, 2123, 2125, 2127, 2129, 2131, 2133, 2135, 2137, 2139, 2141, 2143, 2145, 2147, 2149, 2151, 2153, 2155, 2157, 2159, 2161, 2163, 2165, 2167, 2169, 2171, 2173, 2175, 2177, 2179, 2181, 2183, 2185, 2187, 2189, 2191, 2193, 2195, 2197, 2199, 2201, 2203, 2205, 2207, 2209, 2211, 2213, 2215, 2217, 2219, 2221, 2223, 2225, 2227, 2229, 2231, 2233, 2235, 2237, 2239, 2241, 2243, 2245, 2247, 2249, 2251, 2253, 2255, 2257, 2259, 2261, 2263, 2265, 2267, 2269, 2271, 2273, 2275, 2277, 2279, 2281, 2283, 2285, 2287, 2289, 2291, 2293, 2295, 2297, 2299, 2301, 2303, 2305, 2307, 2309, 2311, 2313, 2315, 2317, 2319, 2321, 2323, 2325, 2327, 2329, 2331, 2333, 2335, 2337, 2339, 2341, 2343, 2345, 2347, 2349, 2351, 2353, 2355, 2357, 2359, 2361, 2363, 2365, 2367, 2369, 2371, 2373, 2375, 2377, 2379, 2381, 2383, 2385, 2387, 2389, 2391, 2393, 2395, 2397, 2399, 2401, 2403, 2405, 2407, 2409, 2411, 2413, 2415, 2417, 2419, 2421, 2423, 2425, 2427, 2429, 2431, 2433, 2435, 2437, 2439, 2441, 2443, 2445, 2447, 2449, 2451, 2453, 2455, 2457, 2459, 2461, 2463, 2465, 2467, 2469, 2471, 2473, 2475, 2477, 2479, 2481, 2483, 2485, 2487, 2489, 2491, 2493, 2495, 2497, 2499, 2501, 2503, 2505, 2507, 2509, 2511, 2513, 2515, 2517, 2519, 2521, 2523, 2525, 2527, 2529, 2531, 2533, 2535, 2537, 2539, 2541, 2543, 2545, 2547, 2549, 2551, 2553, 2555, 2557, 2559, 2561, 2563, 2565, 2567, 2569, 2571, 2573, 2575, 2577, 2579, 2581, 2583, 2585, 2587, 2589, 2591, 2593, 2595, 2597, 2599, 2601, 2603, 2605, 2607, 2609, 2611, 2613, 2615, 2617, 2619, 2621, 2623, 2625, 2627, 2629, 2631, 2633, 2635, 2637, 2639, 2641, 2643, 2645, 2647, 2649, 2651, 2653, 2655, 2657, 2659, 2661, 2663, 2665, 2667, 2669, 2671, 2673, 2675, 2677, 2679, 2681, 2683, 2685, 2687, 2689, 2691, 2693, 2695, 2697, 2699, 2701, 2703, 2705, 2707, 2709, 2711, 2713, 2715, 2717, 2719, 2721, 2723, 2725, 2727, 2729, 2731, 2733, 2735, 2737, 2739, 2741, 2743, 2745, 2747, 2749, 2751, 2753, 2755, 2757, 2759, 2761, 2763, 2765, 2767, 2769, 2771, 2773, 2775, 2777, 2779, 2781, 2783, 2785, 2787, 2789, 2791, 2793, 2795, 2797, 2799, 2801, 2803, 2805, 2807, 2809, 2811, 2813, 2815, 2817, 2819, 2821, 2823, 2825, 2827, 2829, 2831, 2833, 2835, 2837, 2839, 2841, 2843, 2845, 2847, 2849, 2851, 2853, 2855, 2857, 2859, 2861, 2863, 2865, 2867, 2869, 2871, 2873, 2875, 2877, 2879, 2881, 2883, 2885, 2887, 2889, 2891, 2893, 2895, 2897, 2899, 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3565, 3567, 3569, 3571, 3573, 3575, 3577, 3579, 3581, 3583, 3585, 3587, 3589, 3591, 3593, 3595, 3597, 3599, 3601, 3603, 3605, 3607, 3609, 3611, 3613, 3615, 3617, 3619, 3621, 3623, 3625, 3627, 3629, 3631, 3633, 3635, 3637, 3639, 3641, 3643, 3645, 3647, 3649, 3651, 3653, 3655, 3657, 3659, 3661, 3663, 3665, 3667, 3669, 3671, 3673, 3675, 3677, 3679, 3681, 3683, 3685, 3687, 3689, 3691, 3693, 3695, 3697, 3699, 3701, 3703, 3705, 3707, 3709, 3711, 3713, 3715, 3717, 3719, 3721, 3723, 3725, 3727, 3729, 3731, 3733, 3735, 3737, 3739, 3741, 3743, 3745, 3747, 3749, 3751, 3753, 3755, 3757, 3759, 3761, 3763, 3765, 3767, 3769, 3771, 3773, 3775, 3777, 3779, 3781, 3783, 3785, 3787, 3789, 3791, 3793, 3795, 3797, 3799, 3801, 3803, 3805, 3807, 3809, 3811, 3813, 3815, 3817, 3819, 3821, 3823, 3825, 3827, 3829, 3831, 3833, 3835, 3837, 3839, 3841, 3843, 3845, 3847, 3849, 3851, 3853, 3855, 3857, 3859, 3861, 3863, 3865, 3867, 3869, 3871, 3873, 3875, 3877, 3879, 3881, 3883, 3885, 3887, 3889, 3891, 3893, 3895, 3897, 3899, 3901, 3903, 3905, 3907, 3909, 3911, 3913, 3915, 3917, 3919, 3921, 3923, 3925, 3927, 3929, 3931, 3933, 3935, 3937, 3939, 3941, 3943, 3945, 3947, 3949, 3951, 3953, 3955, 3957, 3959, 3961, 3963, 3965, 3967, 3969, 3971, 3973, 3975, 3977, 3979, 3981, 3983, 3985, 3987, 3989, 3991, 3993, 3995, 3997, 3999, 4001, 4003, 4005, 4007, 4009, 4011, 4013, 4015, 4017, 4019, 4021, 4023, 4025, 4027, 4029, 4031, 4033, 4035, 4037, 4039, 4041, 4043, 4045, 4047, 4049, 4051, 4053, 4055, 4057, 4059, 4061, 4063, 4065, 4067, 4069, 4071, 4073, 4075, 4077, 4079, 4081, 4083, 4085, 4087, 4089, 4091, 4093, 4095, 4097, 4099, 4101, 4103, 4105, 4107, 4109, 4111, 4113, 4115, 4117, 4119, 4121, 4123, 4125, 4127, 4129, 4131, 4133, 4135, 4137, 4139, 4141, 4143, 4145, 4147, 4149, 4151, 4153, 4155, 4157, 4159, 4161, 4163, 4165, 4167, 4169, 4171, 4173, 4175, 4177, 4179, 4181, 4183, 4185, 4187, 4189, 4191, 4193, 4195, 4197, 419

WEST SUSSEX " :

Regulard 8 September 1986

PHYSICAL SCIENTIST SCAR
 and ability range throughout the
 school. Removal expenses
 may be paid in approved cases.
 Contact the school for further
 information. Tel: Hayward
 Heath 457881. (01493) 3488

WESTSUSSEX
BOSNOR REGIS
BOGNOR REGIS COMMUNITY COLLEGE
 Westgate Lane, Bosnors Regis
 PO18 8JH
 (Group 12, 11-18
 Comprehensive, 1600 on roll)
 School 1 September 1986.
 Scale 1 Scientist Teacher, En-
 thusiastic Teacher to teach

Lower School (years 1 and 2) pupils. Possibility of some examination classes in years 4 and 5. Well-equipped laboratories.

Apply by letter as soon as possible to the Headmaster of the College, giving details of qualifications and names and addresses of two referees. Further details and application form will be sent on receipt of letter of application. Stamped addressed envelope. 101048; 134822

WILTSHIRE
HARDENHUISH SCHOOL

Chippewa, Wyalishiro
W1A 6H4
Headmaster: Mr. R. J.
Alderman, M.A.
11-18 Mixed
Comprehensive, N.O.R.
1110
**TEACHER OF RURAL AND
ENVIRONMENTAL
SCIENCE** W1A 6H4
Required for September
1986 as teacher of Rural and
Environmental Science. The
School is seeking a teacher
in this subject which
is part of the core curricu-
lum in the L.O. School. This
is a popular option in the
Science Department. The
level is taught to A
level.
Rural Science is a part of
the Science Faculty and the
person appointed will be
responsible for the subject.

expected to contribute to the Air Staff and others to the Air Force in the future. He will participate in the pastoral curriculum.

Hardenbush is a third round C.F.V.E. Scoutmaster and an agriculture features strongly. Prevocational and vocational training is being established with C.F.V.E. is being introduced next year. He sees this as an opportunity for the successful candidate to participate in the exciting field of curriculum and staff development.

Hardenbush, the North is assigned to the North of Chippewyan in a pleasant camp and meeting. This is a place where a meeting is held in which supports the schools in the area. The area of the catchment area includes

part of Chippenham and surrounding villages.

Please apply immediately by letter to the Headmaster including full curriculum vitae to reach the school no later than Friday May 19th, 1986. Tel: Chippenham 650693, (01290) 134222

WILTSHIRE

BRANDON FOREST
SCHOOL
Reid's Piece, Tisbury,
Swindon SN5 9EG

Head Teacher: Mr J.R.
Perkins, B.A.

11-16 (fixed)
Comprehensive School -
N.C.R. 5, 6 September
1986)
Required from September
1986. A scale 1 Graduate
Physicist to join the
Faculty of Science and
Technology.
An interest in Integrated
Technology and/or Electro-
tronics would be an asset.
Letter of application, c.v.
and names and addresses of
two referees to the Head
of the Faculty as soon as possible.
Further details also avail-
able from the School.
Physics Division. 134825
(05352)

WIRRAL
METROPOLITAN BOROUGH
ST. MARY'S R.C. COLLEGE
Wallasey Village, Wallasey,
Wirral L48 5LN
Positions for 1st September
1986: ASSISTANT TEACHER
SCALE BIOLOGY: Able and
enthusiastic across the full age
and ability range in this R.C.
school, and to offer a second
subject.

Apply immediately by tele-
type to the Headteacher with
C.V. and appropriate refer-
ences. 059211 x 13482

2/1 (10/8/86) 2000

[illegible]

INDEPENDENT
EDUCATION
continued

Home Economics

Other Assistants

KENT

HOLY TRINITY CONVENT
Platow Lane, Bromley, Kent
Required for September 1986
Home Economics Teacher
(Food & Nutrition) to teach
lower school pottery and/or
art and design to the school.
Applicants should have a
level 1 approach to the school.
Community - Burnham Scale
Salary.
Applications with curriculum
vitaes and the names and
addresses of two referees
should be sent to the Head-
master, as soon as possible.
183024
183024
183024

OAKHAM
SCHOOL
RUTLAND

HMC; Independent,
Co-educational,
boarding/day,
950 pupils 11-18.

HOME ECONOMICS

Required for September 1986: A part-time teacher
of Home Economics to work within a flourishing Art
and Design Department. The successful applicant
will be expected to teach both practice and theory
to G.C.S.E. standard.
LE15 6DT.



(0801)

MERCHANT TAYLORS' SCHOOL

NORTHWOOD, MIDDLESEX
Telephone: Northwood 21850

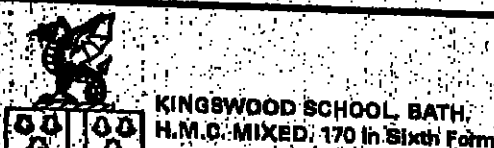
require for September or January

HEAD OF
MATHEMATICS

Own Salary Scale

Further details of this appointment may be obtained from
the HEADMASTER

(0847)



KINGSWOOD SCHOOL, BATH
H.M.C. MIXED: 170 in Sixth Form

Head of Department
MATHEMATICS

Required for September 1986 or later, by
arrangement, an experienced graduate to be
Head of the Mathematics Department on the
appointment of Dr. S.W. Dolan as Project Director
of S.M.P. There will be opportunity to be involved
in curriculum planning and in the whole life of the
School.

Applications in writing by May 19th, together
with curriculum vitae and names of two referees
to: The Headmaster, Kingswood School, Bath

Mathematics

Heads of Department

HERTFORDSHIRE

**ROSBURY PRIORY HIGH
SCHOOL FOR GIRLS**
(Independent R.C.)

Required for September
1986: A teacher of Home
Economics with ability to
teach Textiles to G.C.S.E.
and 'A' level standard. Burn-
ham Scale 1 Salary. Full or
part-time considered.

Application with C.V.
and names & addresses of
two referees to the Head
Teacher, Rosbury Priory
High School, Eistree, G.
Buckley, Hereford. 183094
(01218)

Other Assistants

ASCOT

**MARIST CONVENT
SCHOOL**
Sunninghill SL3 7PS
(Rat 540)

Wanted September 1986.
1. Part-time Teacher of
MATHEMATICS
2. Part-time Teacher of
FRENCH

Application Forms from
the Headmistress. 183424
(02505)

BERKSHIRE

PRESIDENTIAL COLLEGE
63 Benthall Road, Reading, Berks.
RG2 2BS
Independent Roman Catholic
Day Grammar School, 800 Boys
Required for September 1986
to teach Mathematics, Science
and English. Burnham Scale
1 Salary. Full or part-time
considered. Two referees to
the Headmaster. 183494
(01234)

BRIGHTON

RODEAN SCHOOL

(450 girls of whom 140 are
in the Sixth Form)

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Rodean School,
Brighton BN1 3RQ. 183494
(01278)

BRISTOL

CLIFTON HIGH SCHOOL FOR
GIRLS

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Clifton High School,
Bristol BS8 3JQ. 183494
(01278)

CARDIFF

MATHURIN

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Mathurin School,
Cardiff CF11 1JQ. 183494
(01278)

CROYDON

CAMBERLEY TUTOR

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Camberley Tutor,
Croydon CR9 3JQ. 183494
(01278)

DEVON

ST. MARGARET'S SCHOOL
Woodard Corporation
430 on roll, predominantly
day, some weekly boarding
70 in Sixth Form

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, St. Margaret's School,
Woodard, Devon. 183494
(01278)

DURHAM

DURHAM SCHOOL

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Durham School,
Durham. 183494
(01278)

EALING W5

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Further details can be
obtained from the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Further details can be
obtained from the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Further details can be
obtained from the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

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should be sent to the Head-
master, Ealing W5 School,
Ealing. 183494
(01278)

LONDON NW5

SOUTH HAMPTON HIGH
SCHOOL

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, South Hampton High
School, London NW5. 183494
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School, London NW5. 183494
(01278)

SURREY

OULDS HIGH SCHOOL

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Oulds High School,
Surrey. 183494
(01278)

Further details can be
obtained from the Head-
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Surrey. 183494
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Surrey. 183494
(01278)

INDEPENDENT
EDUCATION
continued

BIRMINGHAM

BIRMINGHAM CHURCH OF
ENGLAND COLLEGE FOR
BOYS

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Birmingham Church of
England College for Boys,
Birmingham. 183494
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and addresses of two referees
should be sent to the Head-
master, Birmingham Church of
England College for Boys,
Birmingham. 183494
(01278)

HAMPSTEAD

HAMPSTEAD SCHOOL

Required for September 1986
a well-qualified teacher of
Mathematics to teach the
school. Burnham Scale 1 Salary.
Full or part-time considered.
Two referees to the Head-
master. 183494
(01278)

Applications, with full
curriculum vitae and names
and addresses of two referees
should be sent to the Head-
master, Hampstead School,
Hampstead. 183494
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and addresses of two referees
should be sent to the Head-
master, Hampstead School,
Hampstead. 183494

Home Economics

Other Assistants

KENT
HOLY TRINITY CONVENT
Pleasant Lane, Bromley, Kent
Required for September 1986
Required for September 1986
Home Economics Teacher
(Food & Nutrition)
An ability to teach some
lower school pattern and/or
an advantage but not essen-
tial. Applicants should have a
lively approach to the school
Community - Burnham Scale
Salary.
Applications with curricu-
lum vitae and the names and
addresses of two referees
should be sent to the Headmis-
triss as soon as possible
(15320).

OAKHAM
SCHOOL
RUTLAND

HMC; Independent,
Co-educational,
boarding/day,
950 pupils 11-18.

HOME ECONOMICS

Required for September 1986: A part-time teacher
of Home Economics to work within a flourishing Art
and Design Department. The successful applicant
will be expected to teach both practice and theory
to G.C.S.E. standard.
LE15 6DT.

and the names and
(6861)

MERCHANT TAYLORS' SCHOOL

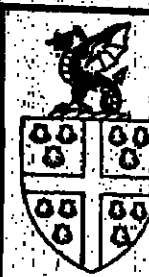
NORTHWOOD, MIDDLESEX
Telephone: Northwood 21850

require for September or January

HEAD OF
MATHEMATICS

Own Salary Scale.

Further details of this appointment may be obtained from
the HEADMASTER (6847)



KINGSWOOD SCHOOL, BATH
H.M.C. MIXED, 170 in Sixth Form

Head of Department
MATHEMATICS

Required for September 1986 or later, by
arrangement, an experienced graduate to be
Head of the Mathematics Department on the
appointment of Dr. S.V. Dolan as Project Director
of S.M.P. There will be opportunity to be involved
in curriculum planning and in the whole life of the
School.

Applications in writing by May 19th, together
with curriculum vitae and names of two referees
to: The Headmaster, Kingswood School, Bath
BA1 5RQ from whom further details may be
obtained.

(1233)

Mathematics

Heads of Department

Other Assistants

HERTFORDSHIRE

ROSBURY PRIORY HIGH

SCHOOL FOR GIRLS

(Independent R.C.)

Required for September 1986
Teacher of Home
Economics with ability to
teach Textiles to G.C.S.E.
and A level standard. Burn-
ham Scale 1 Salary. Full or
part-time considered.

Application with C.V. and
names and addresses of two
referees to the Head
Teacher, Rosbury Priory
High School, Elstree Rd.,
Buck. Herts. (1216) 183024

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DEVON

ST. MARGARET'S SCHOOL

EXETER

Woodard Corporation
450 on roll predominantly
day, 40 on roll boarding
day, 10 on roll boarding
night.

Required for September 1986
Principal teacher of Mathemat-
ics, a well qualified teacher
with a minimum of 5 years
experience in the subject
from 11 to O level. Four
years experience in the
subject is essential. For
some time the school has
been offering a suitable can-
didate. This is a full time
appointment, part-time con-
sidered. Salary scale 183424
(10565)

Applications in writing
with full curriculum vitae and
names and addresses of two
referees to the Headmistress
at the above address. 183424
(10565)

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LONDON W13

SOUTH HAMPTSTEAD HIGH

SCHOOL

Modelled on the Exeter
Woodard Corporation
450 on roll predominantly
day, 40 on roll boarding
day, 10 on roll boarding
night.

Required for September 1986
Principal teacher of Mathemat-
ics, a well qualified teacher
with a minimum of 5 years
experience in the subject
from 11 to O level. Four
years experience in the
subject is essential. For
some time the school has
been offering a suitable can-
didate. This is a full time
appointment, part-time con-
sidered. Salary scale 183424
(10565)

Applications in writing
with full curriculum vitae and
names and addresses of two
referees to the Headmistress
at the above address. 183424
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Deputy
phoning
May,

(6879)

TEACHER OF MATHEMATICS

This post includes the responsibility for developing a computer studies course. A computer room is currently being developed.

TEACHER OF GENERAL STUDIES

A modern well equipped Science Room already exists.

Oubank is a residential school catering for the educational, emotional and social needs of 60 adolescent pupils referred by Local Authorities, Children's Hearings and the Courts.

In addition to working with a broad range of mixed ability pupils successful candidates will be responsible for delivering Standard Grade and National Certificate Courses (16/18 Action Plan) in their respective subjects. A second subject qualification would be advantageous and the ability to offer an extra curricular interest in sports/drama/music would be welcome.

These posts are superannuable. Salaries in accordance with S.T.S.M. plus an Oubank allowance of £1,884 per annum. Possibility of overtime payments (RDA) up to a maximum of 450 hours per annum payable at £42 per hour. Annual leave 4 weeks and 1 day inclusive of public holidays.

Application forms and further details available from the Headmaster, Mr C. R. McKail, B.A., M.Sc.Sc., Cert. Ed., Oubank School, Midlothian Road, Aberdeen AB9 2XP.

Interviews and visits to the school can be arranged with the Deputy Headmaster (Education), Mr A.L. Macdonald, B.A., D.T.E., by telephoning Aberdeen (0224) 313347. Closing date for applications, Friday, 30th May, 1986.

Interviews week commencing 9th June 1986.

(6878)

CONFIDENTIAL

Mature, experienced teacher for Boys Pro-prep School required for September 1988. Non-residential. Applications to the Principal, Wimborne Grammar Preparatory School, 115 The Ridgeway, London SW16 4TA. (05549) 205624

LONDON NW1
Independent Catholic Prepa-
ratory School requires for
September qualified and ex-
perienced female teacher for 9
year old girls with French
preference.
Apply in writing to: Caven-
dish School, 179 Arbury
Road, London NW1 1AA

THE ROYAL SOLDIERS' DAUGHTERS' SCHOOL
65 Rosslyn Hill,
Hamstead, London NW3
5UD

Required for September
two qualified Primary
Teachers for the Pres-
sary Department of this
girls' boarding school. One
of the posts is a
position which will involve
some responsibility and the
other is for a fully en-
trained teacher who would
enjoy working with small
classes.

These are resident posts
and there will be the CPBR

Apply to Principal with
c.v. and names and addresses
of two referees. (35114) 205524

LONDON NW8
JEWISH PREPARATORY
SCHOOL
Required for September 1966
1) highly experienced teacher
for small classes, Juniors 7-8
years old. 2) Nursery Assistant
to work with children 2-4
years old.
Burnham scale + 10% +
London scale.

**DULWICH COLLEGE
PREPARATORY SCHOOL**
London SE21
Required in September 1986 a
qualified Infant Teacher to
take a reception class in the
modern Nursery and Kinder-

The post is particularly suitable for a creative teacher with an interest in early development. An Assistant works with each of the class 'teachers' to produce a happy environment with a strong team spirit.

Burnham School, Burnham Lodge, Ailsworth and D.E.S. Superannuation.

Please apply to the Headmaster, 45 Alyn Park, Dulwich SE21 giving full details of age, training and experience, and of references and enclosing a telephone number.

(00901) 205624

Required for September:
qualified teaching of infant
boys/girls. A willingness to
take on some holiday duties
- while not essential - could
be an advantage.

Application forms
(a.a.o.) from: The Head-
master, 81 Olave's Prep.
School, 100 Southwood
Road, New Egham, London
S25. (129931) 205624

Wanted for September 1956. An experienced and qualified teacher for four and five year olds.

Please apply in writing with curriculum vitae and names and addresses of three referees to: Mr. A.O. Bray, The Hampshire School, 63, Ranelagh Road, London SW7 1PX, (12853) 405634

LONDON W2
From September 1956, co-

LONDON W7
MANOR HOUSE SCHOOL
Teacher required for September 1968. London Prep School to teach Elementary Mathematics, English and Science. One or two supporting subjects to children 11 to 15 and 16. One or two appointments considered. Applications with c.v. to the Headmaster, Manor House School, 100 Manor House Lane, London W7 4JG or phone 01-581 10104.

S Bay New
is an independent preparatory

Hawkes Bay New Zealand

Hareworth is an independent preparatory school for boys, set in pleasant grounds covering some 10 hectares at Havelock North, Hawkes Bay. The school has recently celebrated its centenary and is full, the present

Applications are invited from suitably qualified and experienced people for the vacant position of Principal, duties to ideally commence in September 1986.

An attractive two-storied residence is provided.

Closing date for application is 1st June 86.

For further details write to: The Secretary,
Hareworth School Trust Board,
PO Box 46, Hastings, New Zealand,
Telephone: New Zealand 070 87004

A close-up photograph of a curved, light-colored surface, possibly a piece of wood or a wall. A dark, irregular stain or mark is visible on the surface, appearing as a dark, somewhat horizontal band. The surface has a slightly textured appearance.

LONDON W7
MARCH HOUSE SCHOOL
Teacher required for September in small junior prep school, to teach Elementary Mathematics, with some Science and English, supporting subjects to children 8-13 in small classes. First appointments considered.
Apply with c.v. to the Headmaster, March House School, 100 March Road, Harewell W7 3DE or phone 01-561 206624 (1955).

Applications are sought from candidates of proven ability who have the necessary energy, potential and commitment to make significant contribution to the continued development of this responsive and expanding College of Technology.

SECTOR HEADS

Salary Scale £13,996 - £16,102 p.a.

1. MECHANICAL & PRODUCTION ENGINEERING
2. ELECTRICAL & ELECTRONICS ENGINEERING

Further details and forms of application (large BA5) are available from the Chief Administrative Officer, to whom applications should be sent by the closing date of the advertisement.

This is a re-advertisement. Previous applicants will automatically be considered. (01446)

ADULT EDUCATION SERVICE

NORTHAMPTONSHIRE INDUSTRIAL LANGUAGE
TRAINING UNITIndustrial Language
Training Unit Tutor

Burnham Further Education Lecturer Grade II £8,076-£12,946

This post is currently vacant and it is hoped that the successful applicant will be able to take up the post by 1 September. The Unit consists of a team of three Lecturers, a number of part-time teachers and part-time clerical and administrative staff. Work is undertaken throughout the county. The successful applicant will have good experience of Industrial Language Training or closely associated work, especially in the area of cross-cultural communication and anti-racism training. This post is open to suitably qualified persons regardless of race, ethnic origin, religion, sex, or marital status or disability.

Further details and an application form can be obtained from: The Principal Adult Education Officer, Floor 3, Northampton House, Wellington Street, Northampton NN1 2HX (Tel: 0604 256312). The closing date for applications is Wednesday, 28 May 1986.

Northamptonshire
(Education Dept)RESEARCH POSTS
continuedNEWCASTLE
UPON TYNEUNIVERSITY OF
NEWCASTLE UPON TYNEDEPARTMENT OF
SURVEYINGSERC-CASE
STUDENTS

Applications are invited from British Students who expect to obtain, or already possess, first or upper second class honours degree in land surveying, mathematics, computing or related subjects, for the following studentships.

(1) To study the use of the G.P.S. satellite positioning system for dynamic positioning of vessels offshore. The supervisor will be Professor P. A. Cross and the industrial collaborators are Shell UK Seaport Ltd.

(2) To develop a micro-computer based urban information system. The supervisor will be Dr D. Parker and Ordnance Survey are the industrial collaborators.

Further particulars may be obtained from Professor P. A. Cross, Department of Surveying, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, to whom applications, including a brief curriculum vitae and names and addresses of two referees may be sent.

005131 300000

Fellowships,
Studentships and
Research Awards

HERTFORDSHIRE

AN INDUSTRIAL FELLOW

AT THE

INDUSTRIAL FELLOW

For the academic year September 1986, to encourage research in the field of computer science and its application to industry within the county.

The Fellowship might be held by a person applying for a secondment from another employer.

Further particulars and a nomination form may be obtained from: Dr J. H. G. Owen, Head of the Department of Computer Science, Herts College, Hatfield, Herts AL9 9AB. Tel: (0462) 730000.

005131 300000

GREATER MANCHESTER YOUTH ASSOCIATION
The St Thomas Centre, Ardwick Green North Manchester M12 8FZ

The Greater Manchester Youth Association is a non-armed voluntary youth organisation, providing services to young people in Greater Manchester in the continued development of these services it has the following posts available:

DAYSPACE RETRAINING PROJECT

Youth Workers - 8 posts
To join existing teams engaged in a year Action Research project, ending in September 1987, with the following objectives to develop:

— confidence for unemployed young people
— confidence for day workers
— confidence for part-time and voluntary workers

The workers are based in team situations, five of these posts will be at locations in Greater Manchester, one post based at the Association's Head Office, 10 Hope, Didsbury.

These posts are for:

(1) Youth Workers and trained volunteers from allied fields who are first time job seekers under 25 years of age.

(2) Trained youth workers who are unemployed but may have been employed previously.

(3) Women over 25 who are seeking a return to work.

Salary: GMSA Scale 6, P4-26-28, £5,962-£6,282 (further review).

MOBILE UNITS - 2 POSTS

The Association has been awarded the contract of this innovative unit making use of resources, in developing alternative approaches to youth work.

This unit currently operates three mobile units (M.U.) Outdoor Pursuits, M.U. Conservation, M.U. Sports, offering services to affected groups throughout the county. Staffing consists of an Assistant Director to lead the team, and two instructors. Further initiatives are being considered, in the future.

Assistant Director - 1 post

To lead the unit of the day.

Applicants should demonstrate ability, experience and a commitment to the development of youth work in the Greater Manchester area.

Salary: GMSA Scale 6, P4-26-28, £5,962-£6,282 (further review).

INSTRUCTOR - 1 post

To further develop the use of these units in providing services to our affected groups.

Applicants should demonstrate experience in one or more of the Unit disciplines, must be a minimum of 21 years of age and hold a current driving licence.

Salary: GMSA Scale 6, P4-26-28, £5,962-£6,282 (further review).

CLUB SERVICING/RECREATION & ARTS

Club Servicing Officers - 2 posts

(part-time; 8 x 3hrs monthly)

Required - experienced workers to maintain and protect the physical facilities from the Association's 11 affiliated groups in Wigan and Tameside.

Salary: GMSA Scale 6, P4-26-28, £5,962-£6,282 (further review).

Applicants must be a minimum of 21 years of age and hold a current driving licence.

Application forms, job descriptions and further details for all posts available from GMSA at the above address.

The Association welcomes applications from candidates regardless of race, ethnicity, sex or marital status.

Closing date for applications: Friday 30th May 1986.

005131 300000

OXFORD

UNIVERSITY OF OXFORD

DEPARTMENT OF SCIENCE

SERC STUDENTSHIP

Applications are available in the

Department of Science in the

University of Oxford. These

include the following areas:

— all the research areas available

— CASE Awards in the following

— topics:

— Mass transfer in two-phase

— flow

— Position transfer in two-phase

— flow

— The extension of advanced

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Youth and
Community ServiceDIOCESE OF
CANTERBURY

The Board of Education

invites applications for two

senior members of staff to

join the Diocesan Education

Team in the Autumn. They are:

— A DIOCESAN YOUTH

— OFFICER

— This is a demanding and

— challenging post which will

— require ability and initiative.

— The Board will consider ap-

— plications from persons of

— any race, religion or ethnic

— origin, provided they have

— good educational and work-

— ing experience in youth work

— and are prepared to invest

— time and energy in develop-

— ing the work already done in

— the diocese.

— An EDUCATIONAL FIELD

— OFFICER

— This is a newly-created

— post to develop work with

— young people and families.

— The Board will consider ap-

— plications from persons of

— any race, religion or ethnic

— origin, provided they have

— good educational and work-

— ing experience in youth work

— and are prepared to invest

— time and energy in develop-

— ing the work already done in

— the diocese.

— Full details of both posts,

— together with application

— forms may be obtained by

— sending a first class stamp to

— the Director of Education,

— Canterbury Diocesan Board

— of Education, 100, The Green,

— Canterbury, Kent CT1 1AB.

— Closing date: 31st May 1986.

— (13225) 440000

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LEICESTERSHIRE
COUNTY COUNCILAn Equal Opportunity
Employer

BIRSTALL COLLEGE

Wentworth Lane, Birstall,
Leicestershire LE17 9JG

COMMUNITY TUTOR

(Youth/Adult)

Applications are invited

from experienced and qual-

ified youth and community

workers or teachers for this

post, commencing Sep-

tember 1st.

The successful applicant

will manage youth facili-

ties, co-ordinate service

and develop community

education initiatives on

and off site. There is a

50% reduction in salary

teaching or special project

for term 1 and 2, 14-15

years. This is a creative

role, within community

education requires a

person who can work with

young people and adults in

an imaginative manner.

Salary: Burnham F.E. Lec-

turer 1.

Further details and ap-

plication forms available

from: P. Sapsford, Vice

Principal (Community) at

Birstall College, (0533) 674211. Clo-

sing date two weeks from

appearance of this adver-

tisement. (15553) 440000

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